THE

EARLIEST CIVILIZATION
OF
SOUTH ASIA

(Rise, Maturity and Decline)

BY

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ARYAN BOOKS INTERNATIONAL
NEW DELHI

1997

The Earliest Civilization of South Asia

Published in 1997 by:

ARYAN BOOKS INTERNATIONAL
4378/4B, Pooja Apartments
4, Ansari Road, Darya Ganj
New Delhi-110002 (India)

ISBN-81-7305-107-0

Computer Typeset at Aryan Books International, New Delhi.
Printed in India at Print Perfect, New Delhi.

बभूव या सर्वसुखानि हित्वा
सगामिनी क्षेत्रविशोधकार्ये,
समर्पितं वै **कुसुम**प्रियायै
पुराणगन्धैः कुसुमं प्रसिक्तम् ।

Forsaking all comforts, who became a companion also on the difficult path of (archaeological) field-work, to such a beloved, ***Kusuma****, is dedicated this kusuma (flower), saturated with the fragrance of the past.*

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PREFACE

Since the publication of the third edition of Sir Mortimer Wheeler's *The Indus Civilization* in 1968 no book devoted exclusively to this most ancient civilization of South Asia has appeared, although a few all-inclusive books relating to the prehistory and protohistory of the subcontinent have no doubt come out. However, for the very reason that these latter books have a wide coverage, from the palaeolithic to the early historical times, one should not expect therein a detailed treatment of the subject under discussion. Further, thanks to the enthusiastic field-work over the decades, a lot of new evidence has poured in and it was high time to assess its contribution to our understanding of this singular civilization of the third millennium BC. Hence the present book.

In the preparation of this book the author has received help from many colleagues in India and abroad. As is well known, field-work at many sites relating to one phase or another of the Harappan Civilization is still in progress in Pakistan and India. While some reports on the new discoveries have been published, some others have only been informally circulated. For example, two reports, viz. (i) *Excavations at Mehrgarh-Nausharo 1990-1994*, presented by Drs. Jean-Francois Jarrige, Catherine Jarrige and their colleagues, and (ii) *Harappan Excavations 1994*, by Drs. Richard H. Meadow, Jonathan Mark Kenoyer and Rita P. Wright, have been submitted to the Department of Archaeology and Museums, Government of Pakistan, but have yet to be published. The author is most grateful to these authors as well as to Dr. M.R. Mughal, Director General of the Department of Archaeology, Pakistan, for their kind permission to use the data given in these pre-publication reports. Also, the author's thanks are due to the colleagues just mentioned for supplying slides/photographs relating to these sites. Professor Maurizio Tosi has given useful information regarding sites in the Persian Gulf and author is grateful to him for the same.

As regards sites in India, much welcome help has been received from Shri R.S. Bisht in respect of Banawali and Dholavira, full reports on which have yet to appear. He has also been kind enough to let the author have some of his slides/photographs. A very important site, currently under excavation, is Kunal in Haryana. It has thrown valuable new light on the Formative Stage of the Harappan Civilization. The author is most grateful to Shri J.S. Khatri and Shri M. Acharya for letting him utilize their unpub-

lished material. Rojdi, in Gujarat, has been excavated for several seasons and a report thereon has also appeared. Still the excavator, Professor Gregory L. Possehl, has helped the author by giving him further insight into the results.

For the radiocarbon dates the author has relied solely on *Radiocarbon Dates for South Asian Archaeology* edited by Professor Possehl and published in 1990 by the University Museum, University of Pennsylvania, Philadelphia, USA. (An enlarged version of this publication, brought out in 1994, has also been made available to the author by Professor Possehl, but unfortunately it is too late to utilize it.)

The author is greatly beholden to Shri Krishna Deva, one of the seniormost living archaeologists in India, who had also the privilege of having worked in Sindh with the renowned archaeologist late Shri N.G. Majumdar, for having gone through the typescript and for making many valuable suggestions. Discussions with Shri J.P. Joshi, Shri R.S. Bisht and Drs. S.P. Gupta, Shashi Asthana and Makkhan Lal have added quite a bit to the author's knowledge and he is indebted to them all. Special thanks are also due to Dr. Makkhan Lal for organizing the bibliography. Professor G.N. Pant and Shri D.P. Sharma have very kindly helped in the preparation of photographs of the material lodged in the National Museum, New Delhi, and the author is beholden to them for the same.

Most of what appears in this book was written during the summers of 1992-95 when the author visited Los Angeles to spend some time with his sons, daughters-in-law and grandchildren. During his stay there, he frequently bothered Professor Possehl, Dr. Kenoyer, Professor Robert Lee Brown, Professor Shiva Bajpai and Dr. Pratapaditya Pal to make available to him certain publications, which they generously did. Professor Bajpai also helped the author in many other ways. To them all the author is most grateful.

The entire text of this book, except for a few odd bits, has been prepared on a computer by the author himself. In this context he would like to thank Shri Jagjit Singh Arora who, in Los Angeles, very patiently taught the author in 1992 (when the latter was 71) how to handle a computer.

The maps and line-drawings appearing in this book have been prepared by Shri S.K. Sharma and Shri Vishnu Kant. In the preparation of the photographs the main work-load fell on Shri Rajnath Kaw, supplemented by Shri Vinod Srivastava. To all of them the author is greatly indebted.

While going through the book the reader would find repetition of certain facts. This seemed unavoidable. Take, for example, the site of Harappa. It has yielded the remains of all the three stages of the Harappan Civilization, viz. Formative, Mature and Devolved. Thus, whereas the first stage will be discussed while dealing with the antecedents of this Civilization (Chapter IV) and the last one while discussing its decline (Chapter XIV), both these along with the second stage will naturally figure in Chapter VI where the site itself is discussed in detail. Likewise, there will be cross-references to sites when special aspects are discussed, such as the disposal of the dead, religion, social stratification, chronology, etc. Thus, while dealing with Kalibangan under Chapter VI, Major Excavated Sites, all that matters about the site will be discussed. At the same time, the data about the 'fire-altars' and the sacrificial pit will again be repeated in Chapter XI, on Religion. Again, since the affluent houses of the Lower Town, the ritualistic platforms in the Citadel and the ordinary houses located to the south of the Citadel throw light on social stratification, the same will find repetition in Chapter XII. As already mentioned, this is inescapable and it is to be hoped that

the reader will not mind such repetitions.

An explanation also seems necessary in respect of certain apparent anamolies in spellings, for example 'Sargonic' and 'Sargonid'. Whereas the author prefers the former, he has allowed the latter to stay on while quoting others. Again, some authors have changed the name of the 'Persian Gulf' to 'Arabian Gulf', but the present author has retained the former. Words or phrases like *par excellence, prima facie, milieu, ibid.*, etc. occur in italics.

Pending the publication of this book, two of its chapters have already been printed off (though in a somewhat modified form). These are Chapters XII and XIII, dealing respectively with 'Social Stratification and Political Set-up' and 'Chronological Horizon'. The former was presented at an International Conference on "The Origin of Indian Civilization", held at the University of Bologna, Italy, in 1992 and published in *Harappan Studies*, Vol. I (1993), edited by Gregory L. Possehl and Maurizio Tosi (New Delhi: Oxford and IBH). The latter, also written in 1992, has appeared in *From Sumer to Meluhha*, a volume dedicated to the memory of George F. Dales, edited by Jonathan Mark Kenoyer and published in 1994 as Wisconsin Archaeological Reports, Volume 3. Chapter XIV, 'The Decline and Legacy', again in a somewhat modified form, is under publication in *A History of Indian Science, Philosophy and Culture*, to be brought out under the auspices of the Indian Council of Philosophical Research.

The author would consider his labour amply rewarded if the book interests the general reader and is found to be of use to students of South Asian Archaeology in particular.

Los Angeles
September 18, 1995

B.B. Lal

POSTSCRIPT

Originally it was intended to publish the book in the United States. However, since the author left Los Angeles in October 1995, the idea had to be given up. In March 1996, Shri Vikas Arya of Aryan Books International, New Delhi, approached the author to publish the book. It must go to the credit of this young and enthusiastic entrepreneur that the book has been brought out in a short span of eight months. He deserves the author's special thanks. The author would also like to thank Shri Vishnu Kant for help in preparing the Index.

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(A) COLOUR

(B) BLACK-AND-WHITE

PART I

THE BACKGROUND

I

INTRODUCTORY

In the political literature of today one comes across the term SAARC which stands for South Asian Association for Regional Cooperation. The following countries are included in it: Pakistan, India, Bangladesh, Nepal, Bhutan, Sri Lanka and the Maldives. Though going under different names, they constitute a single geophysical unit, outlined by mountain ranges on one side and seas on the other. Thus, South Asia is that part of the Asian continent which is bounded by the Himalayas on the north, the Hindukush, Sulaiman and Kirthar ranges in the northwest and the Arakan and Patkal mountains on the northeast. The southern part is surrounded by the seas: on the west the Arabian Sea, on the south the Indian Ocean and on the east the Bay of Bengal. Sri Lanka is a big island adjoining the southern tip of India, and there is reason to believe that in geologically ancient times it may have been a part of the subcontinent itself. The Maldives is a chain of over a thousand tiny islands and geomorphologically ought to be regarded as an adjunct of the mainland-mass.

The earliest civilization of South Asia to which this book is devoted is the one that flourished in the north and northwest of the subcontinent during a major part of the third millennium BC (ca. 2600-1900 BC). From the site where it was first identified, it is known as the Harappa Culture/Harappan Civilization and because of its spread in the Indus valley it is also called the Indus Civilization. However, with the discovery of a large number of sites on the one hand in the Sarasvatī-Ghaggar-Hākra valley and in the upper reaches of the Gaṅgā-Yamunā *Doāb* and, on the other, in Gujarat and even Maharashtra — where its influence was felt up to Daimabad in the upper reaches of the Godavarī, the epithet Indus Civilization is no longer fully valid. However, names once given have to be honoured[1] and we propose to retain in the following pages the above-mentioned prevalent terms.

[1] This is particularly true in the case of a very distinctive Indian ceramic industry initially labelled as the 'Northern Black Polished Ware'. As subsequent researches have shown, the ware is not confined to northern India (it occurs as far south as Sri Lanka), nor is it exclusively black (there are golden, silvery and other shades too), and the ware is not 'polished' in the technical sense of the term; still we continue to use the initial epithet.

At this point it may perhaps also be worthwhile to mention that a lot of terms are prevalent in archaeological literature in respect of the periods that preceded and followed the Harappan Civilization itself. As would be seen from Chapter IV, this civilization grew out of a pre-Harappan cultural *milieu*, met with, for example, in Periods I of Kot Diji and Kalibangan. Periods II at both these sites are Mature Harappan, i.e. in these latter periods the civilization was in its full bloom. A term that has gained currency for this formative stage is Early Harappan. However, when an author is stratigraphy-conscious, he uses the term pre-Harappan or pre-Mature Harappan for this preceding complex. There is still another term, viz. pre-Urban, which has been used by certain scholars for this preceding stage since at that point of time 'urbanism' in its fullness was not yet manifest. In such a case the term Urban Harappan has been used for what has been called here the Mature Harappan. Anyway, depending on the given context, in this book three terms, viz. Formative Harappan, Early Harappan and pre-Mature Harappan have been used.

In the course of time the Mature Harappan Civilization began to degenerate. For this stage three terms are in vogue, viz. Degenerate Harappan, Devolved Harappan and Late Harappan. Whereas the first two terms connote the cultural contents, the last-named signifies the chronological or stratigraphic status. However, as long as the right communication exists between the author and the reader, any set of terms is good enough. No single set appears to be acceptable to all scholars, though indeed it would be ideal if it were so.

To revert to this earliest civilization of South Asia. It extended over a very vast area covering almost the whole of the northwestern part of the subcontinent. From Manda, the northernmost station of this civilization (barring, of course, Shortughai in northern Afghanistan, which at the moment seems to be isolated) to Daimabad in the south it is a distance of 1400 km. Again, from Sutkagen Dor on the west to Alamgirpur on the east it is even more — 1600 km. To put it on a comparative scale, the area covered by this civilization was more than that of the contemporary civilizations of either Egypt or Mesopotamia.

But it is not merely the area that is significant. The Harappan Civilization excelled its western contemporaries in many ways, the most noteworthy being its use of kiln-fired bricks for construction, a gridiron pattern of town-planning and an excellent system of drainage. There were, of course, the other criteria of civilization such as monumental structures, a system of writing, flourishing trade and commerce, seaports, use of weights and measures, manifestation of taste in arts and crafts such as bronze and stone sculpture, superbly carved seals, painted pottery and so on.

However, before we go into the details of the birth, heyday, decline, legacy, etc. of the Harappan Civilization it may be well worthwhile to cast a glance at the South Asian landscape along with its climatic conditions so as to get an idea of the ecological background of the various cultural regions. This will be done in the next chapter. The chapter thereafter will be devoted to a glimpse of the cultural mosaic of the subcontinent in the third millennium BC — the time when this grand civilization grew up and flourished. By contrast, one notices that while most of South Asia was still in a Neolithic stage, it was only in the northwestern part that this advanced civilization flourished. One has to sit back and think over the reasons for such a phenomenon. The answer might lie partly in ecological factors, partly in human initiative and partly in cultural give-and-take with neighbouring centres of other civilizations. Maybe

some yet unknown factors lay at the back of this differential evolution. The succeeding chapter (IV) will analyse the antecedents and birth of this civilization, regarding which some evidence was already in hand but in which the recently acquired data from Mehrgarh, Nausharo, Harappa and Kunal have a significant role to play. The flowering of the civilization is dealt with in several chapters that follow, highlighting town-planning, monumental structures, economy, trade and commerce, arts and crafts, disposal of the dead and even some less tangible topics like religion, social stratification, political set-up, etc. The much-debated decipherment of the Indus script has also been dealt with, though briefly.

It had been proposed by certain scholars that this great civilization of South Asia was overrun by marauding Indo-Europeans. That sensational theory no longer holds the field. Anyway, a chapter is devoted to an analysis of the evidence relating to the gradual decline of this civilization.

As might be expected, the people themselves did not disappear. Indeed, a close study of the legacy indicates that what disappeared were weights and measures, town-planning, monumental buildings and cities and what continued were items such as the pattern of ploughing the fields, bullock-carts, folk-level religious beliefs and practices and a host of other items associated with rural life. Perhaps, following Tennyson's 'Brook', the surviving Harappan villages must have whispered into one another's ears:

'For c'ties may come and c'ties may go,
But we go on for ever.'

II

THE FACE OF THE LAND

We may begin with the mainland, on which are located the present-day five political units, viz. India, Pakistan, Bangladesh, Nepal and Bhutan. Geomorphologically, this landmass consists of three major units: (i) a chain of massive mountains on the north, northwest and northeast; (ii) the block of Peninsular India; and (iii) the vast Indus-Gaṅgā plains in between the two (fig. 2.1). As is to be expected, the ecology of these areas shows a vast variation and thus the opportunities for the rise and growth of material culture also varied considerably.

The Himalayan region may be regarded as a young babe as compared to the peninsular mass. In Mesozoic period, before which the peninsula had been in existence for countless millennia, the Himalayan region was under a sea, known as the Tethys Sea. The central backbone of the Himalayas seems to have arisen during the Oligocene times, the Potwar basin and Murree sediments belong to the Miocene and the Siwaliks which impinge on the southern face seem to have been laid down in the Mio-Pliocene phase, but uplifted after the Pliocene. In fact, the terrestrial activities in this last-named region do not seem to have yet ceased.

Stretching for a length of about 2500 km west-east and rising to very great heights in the central region where many peaks are over 6000 m (including the world's highest peak, the Everest, which has been measured variously as 8845.6 m, 8863.4 m and 8882.5 m), the Himalayas are a natural barrier for any worthwhile north-south movement. However, there are three major rivers which cut across the Himalayan ranges in a roughly east-west direction and may have provided passageways, though rugged and, therefore, comparatively little used. The rivers concerned, on the west, are: the Indus, emanating from near the Kailash, a mountain range held sacred in ancient Indian literature, and the Sutlej, whose head-waters are near the famous Mansarovar lake, again reverentially referred to in the same literature. On the east, the Brahmaputra runs eastward for a long distance and then turns first south and then west, passing through Assam in the Indian territory, finally to join the Gaṅgā on way to the sea. Within the upper Himalayan ranges not many hospitable valleys exist allowing for a comfortable growth of large-scale settlements, but lower down wherever the valleys are wide enough and have a reasonably good expanse of alluvial soils, cultural growth did take place fairly early, for example in the Jhelum valley of Kashmir in the northwest or

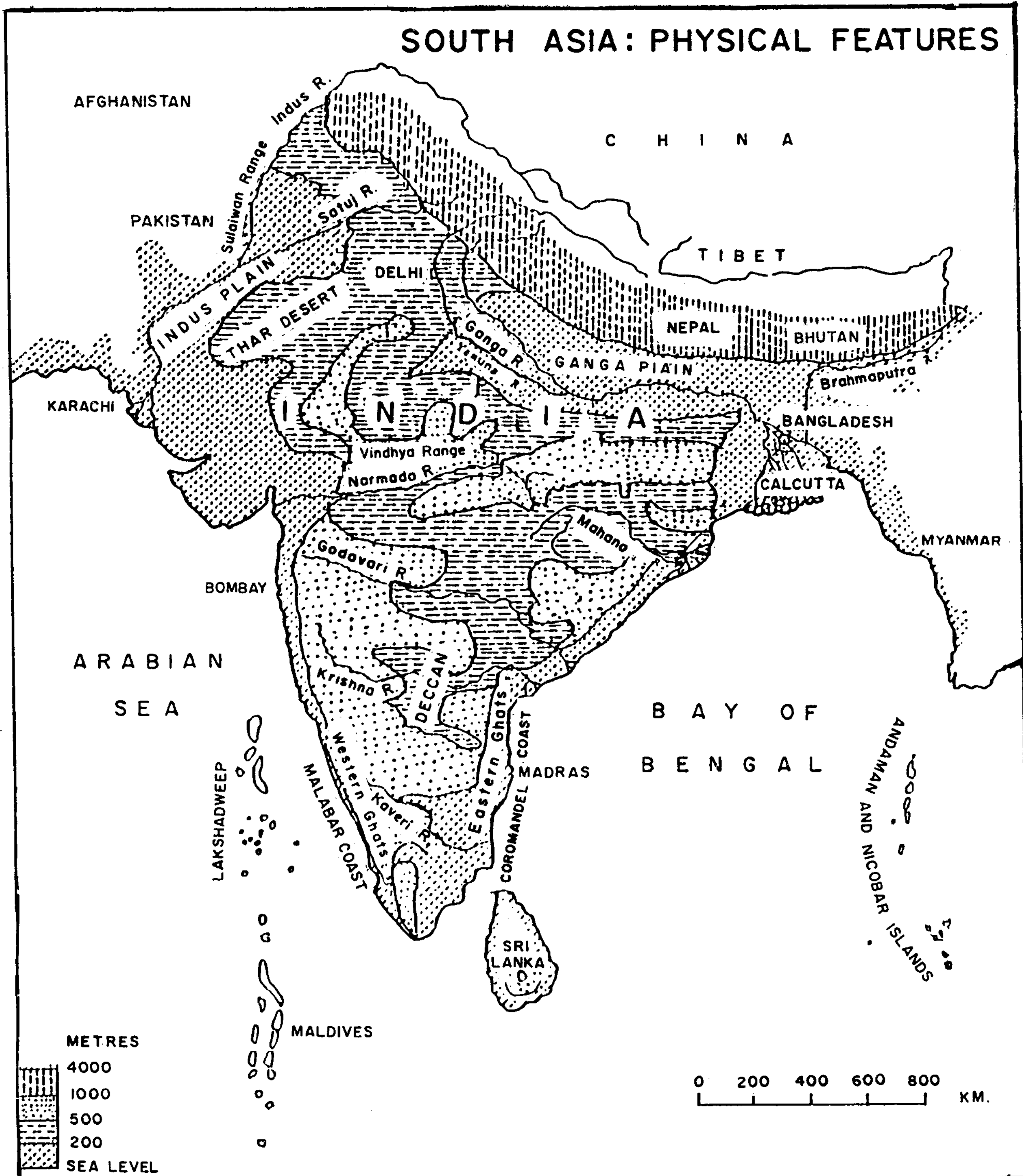

SOUTH ASIA: PHYSICAL FEATURES
AFGHANISTAN
Indus R.
C H I N A
Sulaiwan Range
Satuj R.
PAKISTAN
TIBET
INDUS PLAIN
DELHI
THAR DESERT
NEPAL
BHUTAN
Ganga R.
Yamuna R.
GANGA PLAIN
Brahmaputra R.
KARACHI
I N D I A
BANGLADESH
Vindhya Range
Narmada R.
CALCUTTA
Mahana
MYANMAR
Godavari R.
BOMBAY
ARABIAN SEA
Krishna R.
DECCAN
Eastern Ghats
COAST
B A Y O F B E N G A L
ANDAMAN AND NICOBAR ISLANDS
LAKSHADWEEP
Western Ghats
MALABAR COAST
Kaveri R.
MADRAS
COROMANDEL
SRI LANKA
MALDIVES
METRES
4000
1000
500
200
SEA LEVEL
0 200 400 600 800
KM.

Fig. 2.1

in the Brahmaputra valley in the northeast.

The mountain ranges that lie in the northwestern and western parts of South Asia, for example the Hindukush, Sulaiman, Kirthar, etc., however, are more accommodating than the Himalayas, in so far as human habitations and movements are concerned. The reason for this seems to lie in two factors. In the first place, these and other adjacent ranges are not very closely knit, thus providing valleys, reasonably wide for human habitation, large-scale agriculture and consequent expansion. In the second place, there are many passes through these ranges which link the hilly regions with the Indus plains on the east, such as the Khyber, Bolan and other passes. Similar gaps in these ranges link up the South Asian region of Baluchistan with eastern Iran, Afghanistan and through the latter with Central Asia. This interlinking on the north-west did provide an opportunity to people to have an intercommunication even at a time when high civilizations in these respective areas had not yet developed.

The Arakan mountain ranges on the east of Bangladesh, again, provide a rather tough barrier as do the Himalayas on the north. The passes are few and far between and not easy to negotiate, with the result that there has not been much give-and-take between the typically South Asian cultural ethos and that of Myanmar on the east.

Surrounded by the seas on three sides, except the north, the Peninsular Block goes on narrowing down towards the south. However, in the north it spreads out in an irregular fashion from Kutch at the western end, *via* the Aravallis and hugging the southern border of the Gaṅgā plains, up to the Rajmahal hills in Bihar on the east. In fact, it is held that, with a gap in between, it emerges on the northeast in the form of the Shillong Plateau. However, from the point of view of either age or lithic composition it does not constitute a single unit. Thus, while the gneisses and granites may in parts be as old as Lewisian, the Dharwar and Aravallis are of Huronian age. The Vindhyas are ascribable to the Cambrian period, while the Deccan lavas may be as late as Late Cretaceous/Early Tertiary. Youngest in the Block are, of course, the coastal plains, hugging the Western and Eastern Ghats, and the Narmadā-Tāptī basins, which may well belong to the latest geological period, viz. the Pleistocene (leaving out in this context the Holocene which is but recent). Lithologically, apart from other types and sub-types, at least three major kinds of formations are seen in the Block: for example, the Kaimur ranges consist of sandstone, the Deccan Plateau and parts of Kathiawar are formed by the lava, while the peninsular region in the south is preponderantly granitic. This is, of course, not to say that there is no occurrence of other rocks in the region just stated: thus, while Gwalior is surrounded by sandstone, hardly 50 kilometres to the south near Jhansi one comes across a gneissic terrain. The various rocks provided the raw material to the prehistoric people: pebbles of quartzite and sandstone and chunks of basalt were used for large-sized tools during the Palaeolithic times; and fine-grained nodules of chalcedony, agate, quartz, etc. for the subsequent smaller microlithic artefacts. When it came to the Copper Age, some of these hills, for example the Aravallis or the ones in south Bihar opened up their bosom and offered ores of that valuable metal. Of course, the forest wealth was always there at the disposal of the ancient people, as it is now.

The Peninsular Block is drained by a sort of radial river system. Thus, the Chambal, Betwā, Son, etc. flow northwards to join the Yamunā-Gaṅgā system. Their valleys provided a good linkage between the central Indian cultures and those of the central Gaṅgā valley. The Narmadā and Tāptī, flowing westward fall into the Arabian Sea. Their valleys acted as contact-lines between the seaboard cultures and those of central up-

lands. Broach (ancient Bhrigukachchha), for example, was a very noteworthy seaport during the early historical times. It may, however, be noted that the Western Ghats stand like a wall against the southern part of the Arabian Sea, the only notable pass through it being that of Palghat. Hence the Ghats may have been a deterrent for any large-scale give-and-take between the western coastal regions and the uplands to the east.

The Mahānadī, Godāvarī, Krishṇā and Kāverī flow eastwards discharging into the Bay of Bengal. In the upper regions, the valleys of most of these rivers are not very wide and thus the alluvium deposited by them does not cover very extensive areas as do, for example, the plains of the Indus or the Gaṅgā. The only areas with substantial alluvium offered by the peninsular rivers are nearer the coast, which, therefore, are more fertile than the inland regions, and supported many of the ancient coastal towns and ports, such as Kāverīpumpattinam.

Sandwiched between the mighty Himalayas and associated mountains on the north, northwest and northeast and the massive Peninsular Block on the south are the Indus-Gaṅgā plains. Stretching from the delta of the Indus near Karachi to the delta of the Gaṅga near Calcutta, they form a sort of asymmetric crescent, with the shorter arm between Karachi and say Lahore and the longer between Lahore and Calcutta. A rough estimate would give these plains, measured along the crescent, a length of about 1800 km. The width, varying from area to area, however, ranges roughly between a hundred and four hundred kilometres. The Thar Desert and the Aravallis standing in between, separate the plains of these two mighty rivers, though in the north the two join up, with the Aravallis ducking north of Delhi. The depth of the alluvium is substantially thinner in the Indus basin than in that of the Gaṅgā, the maximum depth having been estimated in the latter valley around 2000 m. (The earlier view that the thickness of this alluvium may have been as much as 4500 m does not seem to hold good in the light of recent researches.)

An interesting point to be mentioned regarding the Indus-Gaṅgā divide is the fact that at some point of time in protohistory, maybe during the lifetime of the Indus Civilization itself, the Yamunā, now a tributary of the Gaṅgā, owed allegiance to the Ghaggar-Sarasvatī system[1] and flowed southwestward. The Ghaggar, which now dries up in Haryana, used to be once a mighty river as indicated by its wide bed clearly identifiable at a number of places. Besides the Yamunā, the Sutlej also seems to have fed the Ghaggar system. In the Bahawalpur region of Pakistan this river is known as the Hākrā. In Sindh, the river flowed southwards, as indicated by the now-dry courses known variously as the Hākrā, Nārā, Wahind, etc. Finally, it discharged directly into the Rann of Kutch. The drying up and rejuvenation of the Ghaggar seem to have taken place not once but perhaps thrice, as indicated by the archaeological evidence associated with it. Thus, for example, in the stretch between Hanumangarh and Suratgarh in Rajasthan, one finds three different cultural complexes associated with it. We have the Harappan Civilization site of Kalibangan on its bank, suggesting that the river may have been alive during the third millennium BC to sustain human activities there. The drying up of the Ghaggar seems to have been the cause of the abandonment of Kalibangan, resulting perhaps in the movement of the people to the northeast where certain rivers were still alive. The Ghaggar seems to have got rejuvenated

[1] Identified by most scholars as the Rigvedic Sarasvatī.

around 1000 BC, as indicated by the occurrence of a series of Painted Grey Ware (PGW) settlements in the region. That this time the river was not as wide as in the Harappan period is suggested by the fact that many of the PGW sites are located on the ancient bed itself. In the archaeological records there is again a break after the PGW period, and a resumption during the early centuries of the Christian era, as suggested by sites like Rang Mahal. Another drying up phase of the Ghaggar is indicated after the end of the Rang Mahal settlement around the third century AD, since no sites ascribable to the period after that and before the medieval times have been reported so far from the area. Today it is not a rejuvenated Ghaggar but a well-knit system of canals that is the main source of water-supply to the region.

Another noteworthy point about the rivers of Indus-Gaṅgā system is that many of them are fed by the Himalayan snow. Thus, even during the hot summer months a reasonable quantity of water is assured since this is just the time when the snow melts. This feature stands in marked contrast to the fate of the peninsular rivers which considerably thin down during that period. The rainy-season swell is, of course, shared by rivers in both the regions.

Before we conclude this brief joint description of the Indus-Gaṅgā plains, a noteworthy difference between the texture of the two subdivisions needs to be pointed out. The Indus plain is sandier and coarser as compared to that of the Gaṅgā, which is essentially silty. This difference seems to be due to the fact that after the combined waters of the main tributaries, from the Sutlej to the Jhelum, fall into the Indus near the area known as the Panchnad, there are no further tributaries, with the result that there is no additional water-supply. The river thereafter begins to shed a great deal of coarser load, and that too in an area which even otherwise is sandy. Even the rainfall in this area is meagre. In contrast, the Gaṅgā, as it moves towards the sea, keeps on being fed by tributaries both from the Himalayas on the north and the Vindhya-Kaimur plateau on the south. With continued supply of water, the load-shedding is relatively less and only fine silt keeps on piling up. The net result is that the Gaṅgā alluvium is more compact than that of the Indus. Further, since the rainfall in a major part of the Gaṅgā basin is more than that in the Indus, the primeval forest-cover in this valley must have been much denser than in the Indus. As a result of this differential setting in the two valleys — a relatively sandier land-surface and less of forests in the Indus valley and a hard soil and thick forest in the Gaṅgā basin, the former terrain must have been easier to exploit for agriculture than the latter. It has been held, perhaps rightly, that because of such a difference, it was possible for the humans to exploit major parts of the Indus valley much earlier (in the fourth millennium BC) even with copper/bronze tools than those of the Gaṅgā valley which had to wait for large-scale agricultural activities until the manufacture of iron ploughshares around 1000 BC.

Although we have discussed the broad outlines of the geomorphology of the main landmass of South Asia, which covers, besides India and Pakistan, three other constituents, viz. Nepal, Bhutan and Bangladesh, it may not be quite unwarranted to go a little bit more into the physical features of the last-named three countries.

Falling largely within the central and partly eastern Himalayan zone, Nepal stretches west-east for a length of about 900 km. However, north-south it constitutes a strip of only about 250 km in width. Geomorphologically, it consists of hills in the north, the Terai in the south and valleys in between. The highest Himalayan peak, namely the Everest, already referred to earlier, lies on the Nepal-

Tibet border. Amongst the other high peaks one might mention the Kanchenjunga, Annapurna and Dhaulagiri, all of which are over 8000 m. Whereas the high-altitude areas, being mostly snow-clad, have little to induce permanent large-scale settlement, the valleys do provide the most comfortable area. The more noteworthy valleys are those of the Sapt Gandak, Bāgmatī, Sapt Kosī, etc. It is, however, in the Bāgmatī valley, in the region north of where it passes through the Mahabharata Lekh (a mountain range) that the capital, Kathmandu, and two other towns, viz. Patan and Bhatgaon, are situated. Because of its forest and agricultural resources, the Terai region also plays an important part in the economy of Nepal.

On account of the formidable hilly terrain and lack of easily communicable passes, the intercourse between Nepal and its northern neighbour, Tibet, has been rather meagre. Thus, the main cultural interaction has been with India, through the Terai region.

Bhutan, the most northeasterly constituent of South Asia, is set in the eastern Himalayas and covers a relatively small area. Located in its northwestern part, the Chomo Lhari rises to a height of 7263 m, its peak providing, as it were, a vigil on the Bhutan-Tibet border. The main drainage of the rivers is from north to south. The valleys are narrow and, therefore, not quite suitable for large-scale cultivation. Nevertheless, in them are grown rice and some buckwheat. Higher up, wheat and barley are also grown. Yak is the main transport animal and its hair is also exploited commercially. The forests too contribute to the economy.

With the partition of the then India in 1947, the country now called Bangladesh went over to Pakistan and was called East Pakistan, but in 1971 it became independent.

Geomorphologically, most of Bangladesh is an alluvial plain brought into being by the two major rivers of the east, viz. the Gaṅgā and Brahmaputra. Due to low gradient the rivers become slow and spread out in deltaic formations. In the southeastern part is the Chittagong Hill tract which borders on Myanmar. With plenty of rainfall, the country abounds in rice and jute.

In a short chapter introducing the basics of the geomorphology of South Asia it is not possible to go into a detailed discussion on rainfall and temperature of the various regions and sub-regions. At the same time, it may be well worthwhile to present a sort of generalized picture of these phenomena. In so far as the rainfall is concerned, there are two broad areas which stand in marked contrast to each other. Thus, while the submontane regions of the central and eastern Himalayas,[1] the eastern parts of the Gaṅgā delta and the region along the Western Ghats receive an annual rainfall of over 200 cm (of course, with a variability factor of 30 per cent), the hilly regions of Baluchistan and of northwestern Himalayas, the plains of Sindh and western parts of Pakistani Punjab receive an annual rainfall of less than 50 cm (fig. 2.2). An almost parallel belt east of the aforesaid Western Ghats area, parts of the eastern coastal belt south of Madras, the central Gaṅgā plains and parts of central India receive variously a rainfall between 100 and 200 cm. The rainfall of a sizable portion constituting a somewhat zigzag vertical belt from extreme north to deep south ranges from 50 to 100 cm. While most areas get both summer and winter rains, there are some which get only one.

There is a vast variation in the temperatures of the various regions in South Asia.

[1] Incidentally, Cherapunji in the northeastern Himalayas receives the highest rainfall in the world (1070 cm).

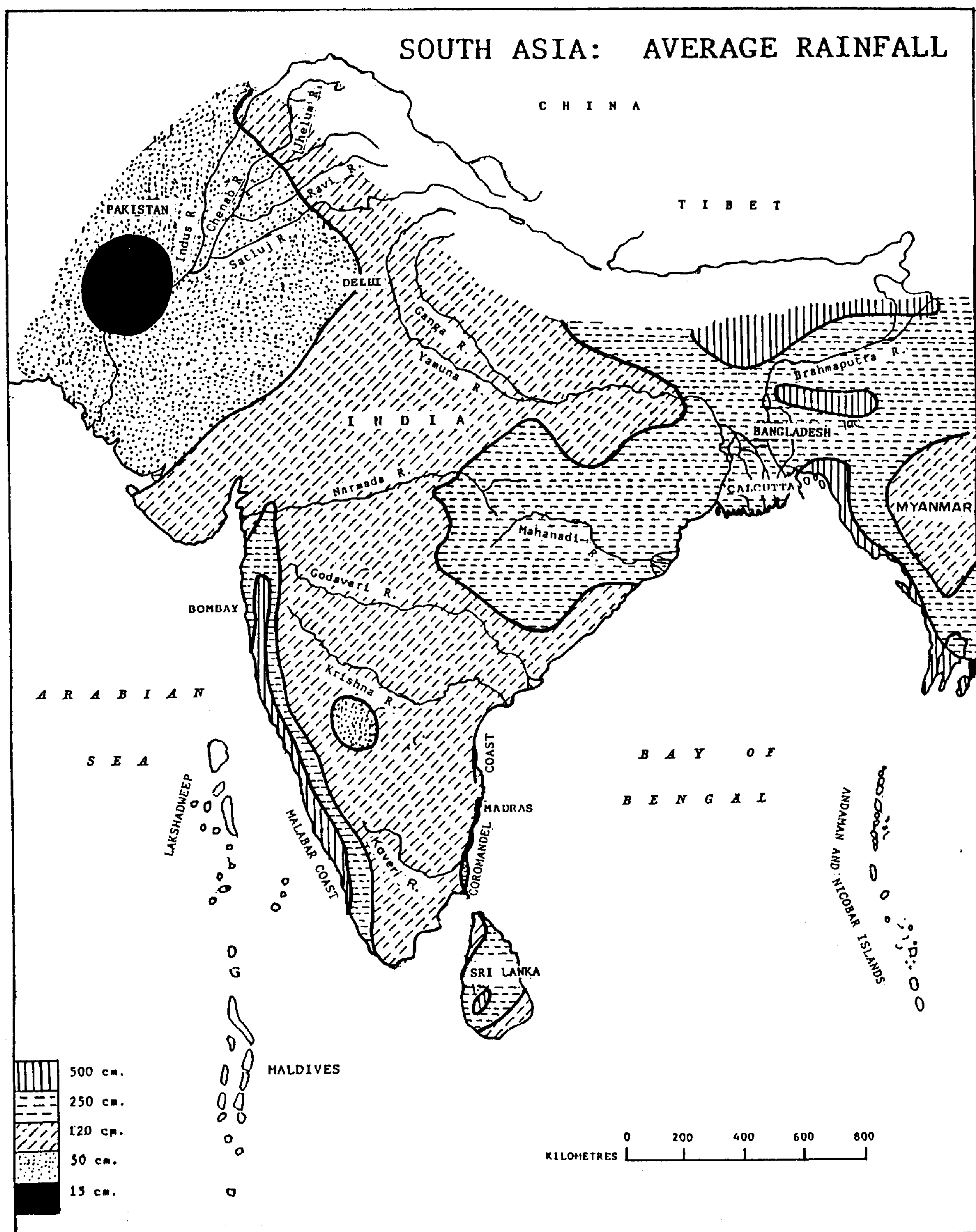

SOUTH ASIA: AVERAGE RAINFALL
CHINA
TIBET
PAKISTAN
Indus R.
Chenab R.
Jhelum R.
Ravi R.
Satluj R.
DELHI
Ganga R.
Yamuna R.
INDIA
Brahmaputra R.
BANGLADESH
CALCUTTA
MYANMAR
Narmada R.
Mahanadi R.
Godavari R.
BOMBAY
Krishna R.
ARABIAN SEA
BAY OF BENGAL
COROMANDEL COAST
MADRAS
LAKSHADWEEP
MALABAR COAST
Koveri R.
ANDAMAN AND NICOBAR ISLANDS
SRI LANKA
MALDIVES
500 cm.
250 cm.
120 cm.
50 cm.
15 cm.
0 200 400 600 800
KILOMETRES

Fig. 2.2

Thus, as might be expected, the high Himalayas remain frozen almost all through the year; that below 4000 m is comfortable during summer. However, the Siwalik belt gets hot during summer, and so do the Indus-Gaṅgā plains. In summer, the temperature shoots up to 45 °C at places, and sometimes even higher. Conversely, there are places in these plains, particularly in the northwest where one can find even sub-zero temperature in the night. In the southern part of India the climate on the whole may be described as hot and humid, though during winter the weather is often pleasant. Some relatively high-altitude places in the peninsula, like Bangalore in Karnataka, are moderately cool all through the year.

The quantum of rainfall, the degree of heat/cold and, of course, the nature of the soil-cover have a lot to do with agricultural production. This, in turn, affects the economic and material development of the regions concerned. All this is indeed reflected in the archaeological remains, since in antiquity artificial means of irrigation were either non-existent or were few and far between.

Outside the mainland there are islands, big and small, which form a part of South Asia as a whole. Spread out more or less vertically, down south in the Bay of Bengal, are the Andaman and Nicobar groups of islands, all of which fall within the jurisdiction of India. The Andamans comprise about two hundred units of which only three are large. Some 120 km south of the Andaman group are the Nicobar islands, seventeen in number and covering an overall area about one-fourth of the Andamans. The bedrock is either sandstone or limestone or quartzite or serpentine, with clays overlying or lying against the same. The rainfall is around 250 cm and the temperature hovers around 30 °C. Because of these climatic conditions the islands are full of jungle, except where the same has been cleared up for agriculture in the recent past. The population of these islands is a mixed one: in the Andamans there are some remnant tribals of the Negrito group; whereas the Nicobarese core is of Mon-Khmer extraction. A considerable section of the population consists of people from various parts of India, earlier sent out as convicts by the British and now some moving in on their own.

Located at a distance of about 500 km west of the Kerala coast and, again, falling within Indian jurisdiction are the islands called Lakshadweep (literally a hundred thousand islands; spelt as Laccadive by the British). The name is just symbolic of a large number, since the isles are many — small and staggered. These isles are formed of coral detritus. The people, largely of Kerala origin, trade with the mainland, taking out marine products and bringing back rice and other necessities.

Close by are the Maldive islands, now constituting an independent country. The terrain and climate are not much different from those of Lakshadweep, and so are the products. The people, however, are more akin to the Simhalese.

This brings us to the most important island off the main landmass of South Asia. It is Sri Lanka, located immediately to the south of the southern tip of the Indian peninsula. In fact, the location is not without significance, since evidence suggests that in remote geological times it got detached from the mainland, thus forming a 'continental island'. Roughly pear-shaped on plan, it measures about 435 km from the northern tip to the southernmost edge and has a maximum width of about 225 km across the southern part. The northern end — the Jaffna peninsula — is hardly 30 km from the mainland. The intervening sea is shallow and it is not unlikely that even during a mild Ice Age when some of the sea-water got locked up as ice in the Himalayas, a few land-strips may have surfaced, hoppingly connecting the mainland

with Sri Lanka. In fact, Indian literary tradition, as embodied in the *Rāmāyaṇa* of Vālmīki, has it that from Rameshwaram on the Indian side, Śrī Rāma crossed over to Sri Lanka to regain his wife, Sītā, who had been abducted by Rāvaṇa, the then king of Sri Lanka.

With a hilly core rising to a height of above 1500 m in the mid-south, the island has a sort of terraced topography, descending down to plains all around and then culminating in the seashore. Because of this kind of topography, the drainage is generally radial. The longest river is Mahaveli Gaṅgā, rising from south of Kandy in the hills and going all the way to the northeast to join the sea south of Trincomalee. The island receives both the southwest and northeast rains, the former during summer and the latter during winter. However, it is the southwestern part, particularly the area close to the hills, that receives the maximum amount of rain, the highest reaching above 500 cm. The northeastern part is relatively dry, the mean annual rainfall remaining below 200 cm. The mean average temperature year round does not vary much, ranging between 25 and 30 °C. The climate as well as the terrain are very suitable for rice-cultivation. Other produces include coconut, tea, rubber, etc. Fishing also adds quite a bit to the food-resources and economy.

Falling on the searoute from Europe/Africa to eastern Asia, the island has provided a good halting place for ships. This is very much reflected in the history of Sri Lanka at least since the Roman times.

The main population of the island consists of Simhalese who are thought to have come from India by the sea-route. In the northern part, particularly in Jaffna peninsula, there are the Tamils who evidently migrated from nearby Tamil Nadu on the mainland. People of Arab origin also constitute a part of the population, specially along the western littoral; they seem to be there because of the trade during the medieval times. The European influence, of course, is of recent origin.

III

CULTURAL MOSAIC IN THE THIRD MILLENNIUM BC

In the third millennium BC when a large population manifesting all possible signs of a highly advanced civilization was occupying a sizable part of South Asia, from the southern littoral of Baluchistan on the west to the upper reaches of the Gaṅgā-Yamunā *Doāb* on the east and from the sub-Himalayan region in the northwest to at least the mouths of the Narmadā and Tāptī in the south, those who showed up on the various other parts of the subcontinent were not even half-advanced as compared to their counterparts in the northwest. Why such a difference, it is difficult to explain. Maybe because the ecological opportunities were not alike in the various regions: there were not the vast productive plains offering them the much needed agricultural surplus; and even where such plains did exist, as for example in the Gaṅgā valley, the soil was too hard and the forest-cover too thick to yield to stone and even copper tools which these other people were able to forge by that time. Maybe in terms of genius and will — a determination to jump ahead, they were not as gifted as their northwestern contemporaries. It is also not unlikely that the crosswinds of competition that had started blowing between West and Central Asia on the one hand and the Indus valley on the other, *via* Baluchistan and Afghanistan, were blocked by the Thar desert and the Aravallis, thus not yet reaching the central, eastern and southern parts of South Asia. There could be many other factors yet unknown and unexplored. Be that as it may, the fact remains that no other part of South Asia did take the great leap from self-contained agricultural-pastoral rural stage to that of an agriculturally-surplus, trade-oriented, luxury-conscious, well-administered urban civilization. There exists, no doubt, evidence of contacts between this urban civilization of the northwest and some of its western neighbours, but the contacts pertained by and large to trade and commerce.

To get an idea of what was happening in the other regions of South Asia, we may begin with the northwest. It is obvious that in this kind of survey not all sites can be referred to individually. The spotlight would fall on major areas as such and the names of sites would only be illustrative (fig. 3.1).

THE NORTHWESTERN HIMALAYAS

Located on the Karewas in the Himalayan part of the Jhelum valley in Kashmir, there are, amongst others, two noteworthy sites, viz. Gufkral (Sharma, A.K. 1982) and Burzahom (pl. XVIIA; Khazanchi 1976; Kaw 1979; Saar 1992), which share most of the

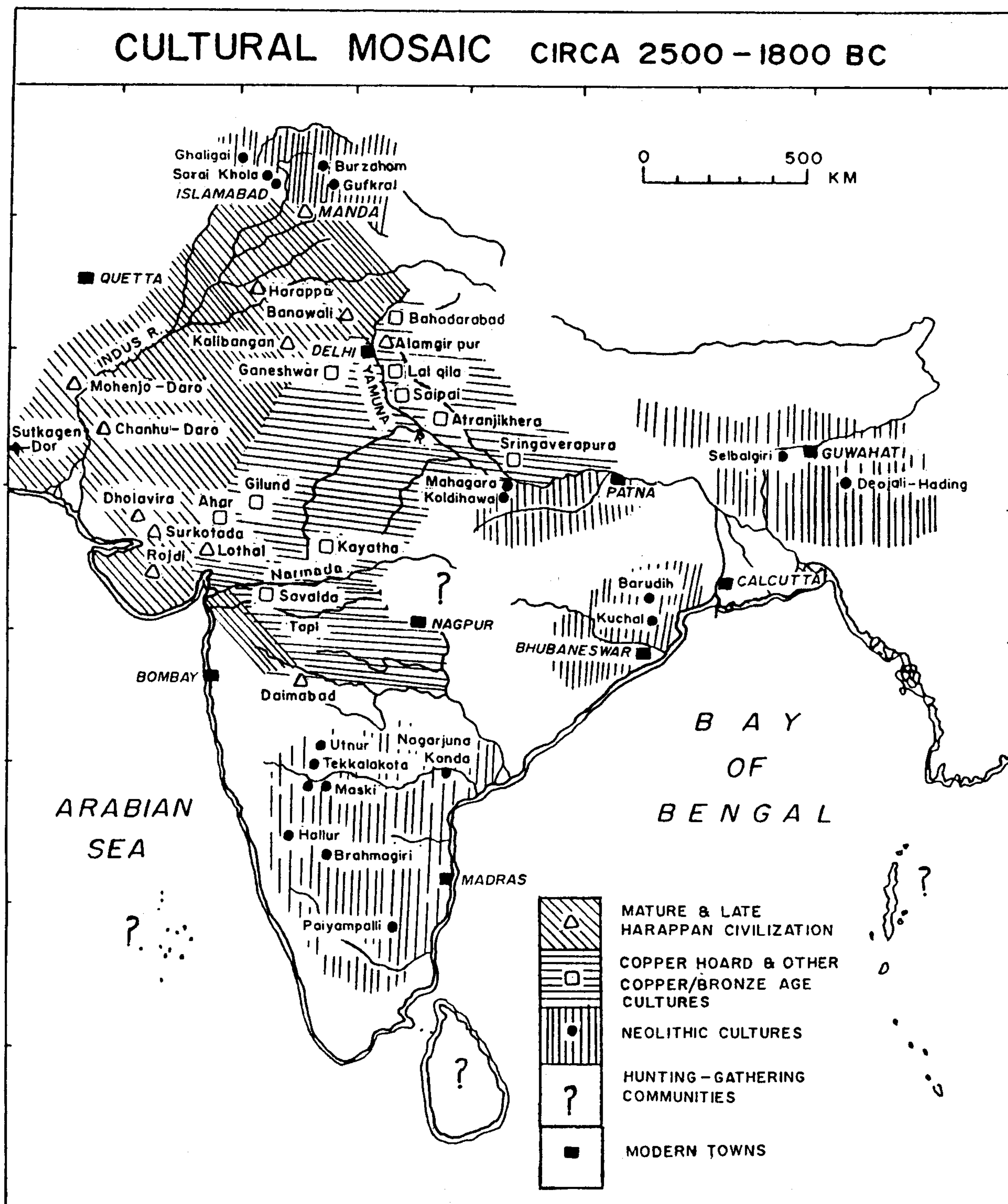

CULTURAL MOSAIC CIRCA 2500–1800 BC
0 500 KM
Ghaligai
Sarai Khola
ISLAMABAD
Burzahom
Gufkral
MANDA
QUETTA
Harappa
Banawali
INDUS R.
Kalibangan
DELHI
Bahadarabad
Alamgir pur
Ganeshwar
YAMUNA R.
Lal qila
Saipai
Mohenjo-Daro
Atranjikhera
Sutkagen Dor
Chanhu-Daro
Sringaverapura
Selbalgiri
GUWAHATI
Deojali-Hading
Gilund
Mahagara
Koldihawa
PATNA
Dholavira
Ahar
Surkotada
Lothal
Kayatha
Rojdi
Narmada
Savalda
Barudih
CALCUTTA
Kuchai
Tapi
NAGPUR
BHUBANESWAR
BOMBAY
Daimabad
BAY OF BENGAL
Utnur
Nagarjuna Konda
Tekkalakota
Maski
ARABIAN SEA
Hallur
Brahmagiri
MADRAS
Paiyampalli
MATURE & LATE HARAPPAN CIVILIZATION
COPPER HOARD & OTHER COPPER/BRONZE AGE CULTURES
NEOLITHIC CULTURES
HUNTING-GATHERING COMMUNITIES
MODERN TOWNS

Fig. 3.1

protohistory of the region. These lie at distances respectively of 41 km southeast and 16 km northwest of the State capital, Srinagar. The beginnings of Gufkral are earlier since it has at its base a non-pottery, and thus a pre-pottery, neolithic, labelled as Phase IA in the entire neolithic context of the valley. (Whether or not such a phase also existed at Burzahom has been debated.) The Neolithic IA people had clearly come out of the hunting-gathering stage, as evidenced by the cultivation of wheat, barley and lentils and domestication of sheep and goat. Of course, hunting had not been given up, since the faunal remains from the strata include those of wild ibex, bear, stag and even wolf.

Evidently because of the bitter cold winds that blow over the high Karewa flats, the inhabitants chose to live in pits dug into the ground. These were generally circular or rectangular on plan and were provided with thatched roofs, as indicated by the discovery of postholes around the edges of the pits. Immediately outside these dwelling pits there were smaller ones, used for storage, and as hearths for cooking. The use of red ochre for painting the plastered floors, both of the dwelling pits as well as of those used for storage, was a common sight.

While polished stone tools which are generally considered as an insignia of a 'neolithic' culture were duly present, additional interest attaches to the tools manufactured from antlers and bones. These latter included harpoons, scrapers, points and interestingly even needles which may have been used for some kind of leather-work (pl. XVIIIA). The repertoire of stone tools, made of the Himalayan trap, included: axes and picks, which may have been used respectively for felling trees and digging the soil for agricultural purposes; and items like querns, pestles and pounders, which may have been used for thrashing and milling the grains.

In the course of time (in Phase IB) pottery also began to be manufactured. Handmade, the pottery showed three varieties in fabric: a dull-red gritty, a fine grey and a coarse grey, of which the last-named predominated. Amongst the shapes, the more noteworthy were bowls, basins and globular jars. An interesting feature was the impression of mats on the exterior of the disc-base of these vessels, proving incidentally the manufacturing of mats as well. Phase IB is more extensively represented at Burzahom where some additional features have also been noticed in the dwelling pits of this phase, for example, the provision of steps in the deeper ones, and an interconnection between two adjacent ones. The latter feature might suggest an enlarged family.

Another feature noted at Burzahom is the location of these dwelling pits in the peripheral region of the settlement and of squarish pit-chambers in the central part. Would such a disposition suggest some kind of group-congregations or kinship? Anyway, the chambers (pl. XVIIB) were well provided with storage-bins and hearths within their premises and may thus suggest their ownership by a relatively well-to-do section of the population.

Vertical excavations always suffer from a drawback, viz. that the area excavated in the lower levels is much less than that in the upper. Hence the acquired picture of the different levels is not on parity. With this proviso, it may be said that in Phase IB there was an addition to the domesticated animals, viz. that of the cattle and dog. Likewise, peas were also added to the list of grains.

In the tool-repertoire, there was also an increase in the variety to meet the upcoming needs, such as the addition of awls and arrowheads in bone and hoes in stone.

In the succeeding phase, viz. IC, a noteworthy change took place in so far as the dwellings were concerned. People now began to abandon the pits or pit-chambers and

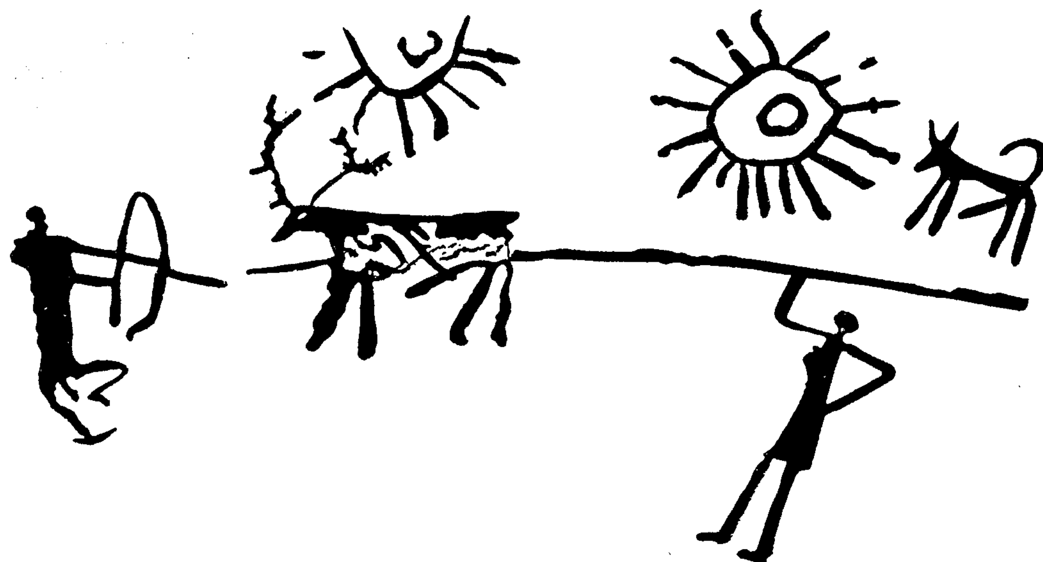


Fig. 3.2 Burzahom: Neolithic hunting scene, engraved on a stone slab

took to living overground, in houses made of mud or mud bricks. Amongst the stone tools, particular mention may be made of 'harvesters', rectangular or crescentic in shape and having two holes through which some kind of cord could have been passed for fastening (pl. XVIIIB); as also of double-ended 'picks'.

About half-a-dozen graves ascribable to this phase throw valuable light on the funerary practices and beliefs of these people. Two kinds of burials seem to have been in vogue. In one, the entire body was interred, laid flexed on one side or even kept reclining (pl. XIXA). In the other, only a few bones were buried, presumably after an exposure of the body. Remnants of red ochre on the bones suggest some kind of ceremonial application of that substance before interment. Interesting also is the burial of animals, particularly of the dog (pl. XIXB).

That the Kashmir Neolithic folks were not without artistic sense is shown by the discovery of two engraved stone slabs from Burzahom. One of them (fig. 3.2) depicts a hunting scene. In the lower register, the body of a stag is being pierced with a spear by a person while another person is shooting an arrow at the animal from the front. In the upper register there are a dog and what seem to be the representations of two suns. Why two, it is difficult to explain. It has been suggested by some scholars that one may represent the rising sun and the other the setting, indicating that hunting was done during the day. Be that as it may, it is clear that hunting played a significant role in the life of these people.

In the neolithic levels of Burzhhom there is also evidence of contact with regions beyond the Kashmir valley, both within South Asia and even outside it. As a proof of this contact may be cited a vase with a globular profile, flat bottom and short rim. It is wheel-made, has an orange-purplish slip and bears a black-painted design — a horned figure spaced between the horizontal neck-band and two similar bands one-third down the body (fig. 3.3). The motif at once reminds one of the same or similar design from quite a few sites, some as far away as Kot Diji in Sindh (Khan

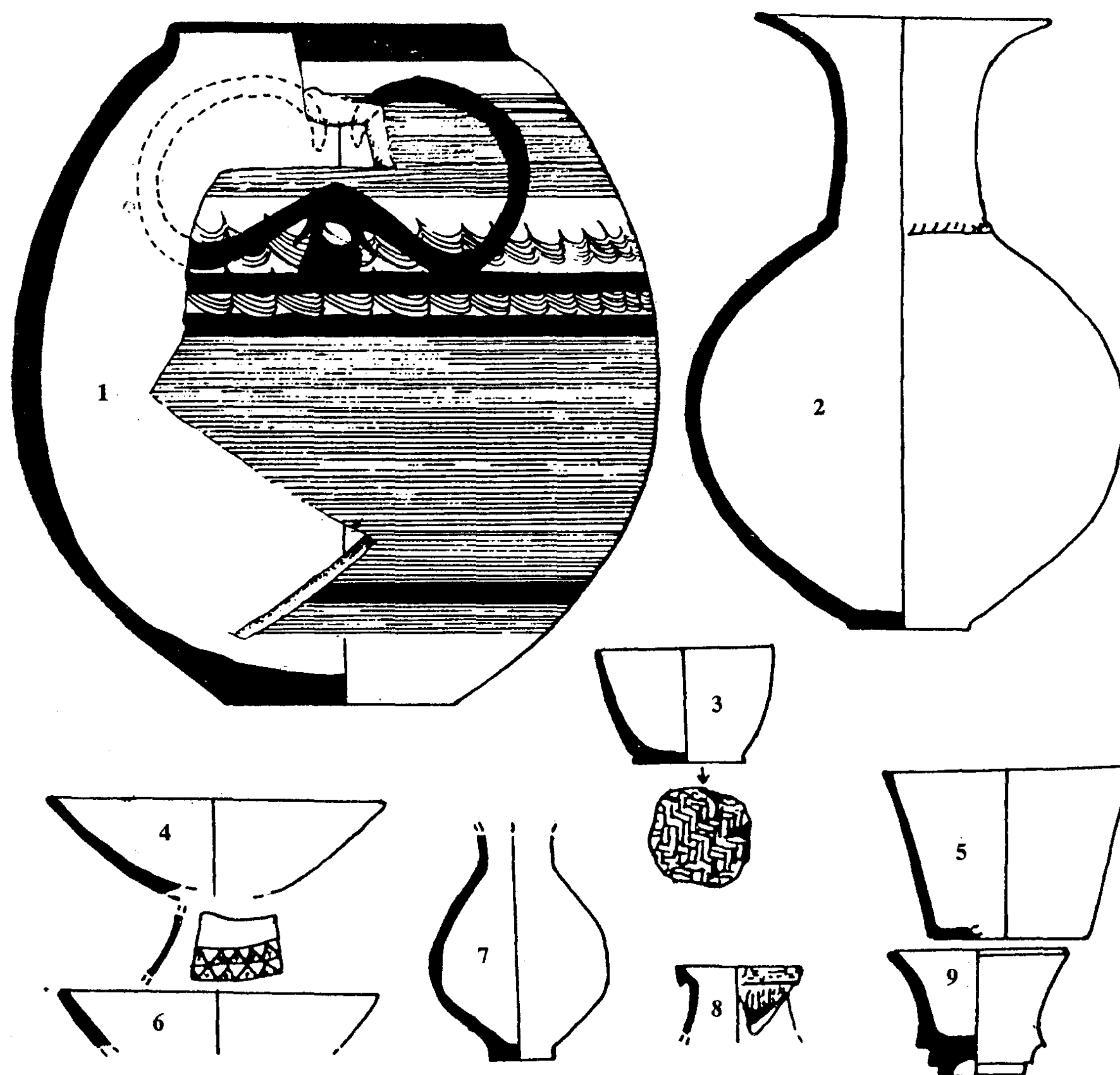


Fig. 3.3 Burzahom: Pottery from Neolithic levels; no. 1 is reminiscent of pre-Harappan pottery from Kot Diji

1965). Burzahom also yielded a red ware pot full of beads of carnelian and agate, which again points to an Indus contact. If further proof of this contact were needed, one could easily cite the occurrence of copper tools, such as knives, axes, spearheads and bangles, one of them provided with spiral decoration near the opening. Their limited number as well as lack of evidence for local manufacture point to their having been imports, once again from the Indus plains.

The other kind of evidence of contact, this time pointing in an easterly direction, is provided by stone 'harvesters', already referred to above. For long it had been thought

that these were made under the influence of the Yang-Chow and Lung-shan cultures of northern China, datable respectively to ca. 5000-3000 BC and 3000-2000 BC. The enormous distance, about 3000 km, between Kashmir and the region concerned in north China, specially without any intermediary link, raised many a question. These questions would seem to have been answered, at least to some extent, by the excavations of a neolithic site, viz. Karuo, on the Tibetan plateau (Karuo 1985; Chaolong, Xu 1991). Over here these typical harvesters constitute quite a substantial percentage of the stone-tool assemblage.

In this context another specific type, viz. the double-ended pick, may also be cited which occurs both at Burzahom and Karuo. Even in the pottery certain resemblances in form and technique are discernible. Pit-dwelling is also a characteristic shared by the Tibetan and Kashmiri sites. Further we may also not lose sight of a jade bead found at Burzahom where it is alien; it may well have found its way from the east where it was more at home.

All this evidence raises a more fundamental question: Is this similarity the result merely of a contact, or is there more to it than meets the eye, viz. the sharing of a common tradition and still more, the movement of people? Unfortunately, we do not have a report on the physical type of the Burzahom skulls. Anyway, this seemingly difficult trans-Himalayan movement may not have been really impossible. Karuo is situated on the confluence of a river of the same name, with another called the Lang-Cong. The combined stream then flows southward. The main drainage of the Tibetan region is provided by the west-east flowing Tsangpo (Yalu-tsang-pu) river, which, after turning southward, enters the Indian territory in Assam and is known as the Brahmaputra. The origin of the Tsangpo-Brahmaputra river, however, lies in a region not far from the birthplaces of two major Indian rivers, viz. the Indus and the Sutlej. These two latter rivers have a number of tributaries too. It is thus not unlikely that a route, howsoever trying, may have existed in ancient times connecting the upper reaches of the Tsangpo on the one hand and of the Indus and the Sutlej on the other.

Now to the chronological horizon of the neolithic culture of Kashmir. We have a three-fold evidence to deal with the same. First, there are eight radiocarbon dates for Burzahom, two of which lie in the first half of the third millennium BC, as many as four in the second half of that millennium, one in the first half of the second millennium BC and one in the first half of the first millennium BC. This is not the place to go into a detailed discussion of these dates *vis-a-vis* their stratigraphy and the nature of the samples concerned. In any case, it is clear that the Kashmir Neolithic Culture was in existence at the time of the Mature Harappa Culture and may have well antedated it. This latter part of the statement is well supported by the intrusion of the aforementioned globular vase of red ware with black-painted horned design, which is similar to that found at many sites in a pre-Mature Harappan context. Lastly, the similarity in many artefacts and even in the overall cultural pattern of the Kashmir Neolithic with that discovered at Karuo also leads to the same conclusion. The radiocarbon dates for the lower and upper levels of Karuo are around 3000 BC and 2000 BC respectively (Chaolong, Xu 1991). Indeed, it is not unlikely that the pre-ceramic levels of Gufkral may go back to some time in the fourth millennium BC.

While discussing the neolithic set-up in the northwest one might refer to a few other sites which show a similar level of cultural development. In the lowest strata of the Ghaligai cave in the valley of the Swat, a western tributary of the Indus, has also been

found a neolithic complex with handmade pottery but without any metal (Stacul 1969). On the basis of radiocarbon determinations these strata are ascribable to the beginning of the third millennium BC. Loebanr in the same region has also yielded similar neolithic remains, with pit-dwellings as well. Jade beads are also noteworthy since the same indicate an extra-territorial contact. Besides wheat, barley and lentils, one may note the occurrence of rice and grapes.

THE CENTRAL AND EASTERN HIMALAYAS

In this region neoliths have been reported from Nepal (Banerji and Sharma 1969), Sikkim (Sharma, A.K. 1981) and Assam and its neighbouring States (Sharma, T.C. 1981). In Nepal, evidence of neolithic occupation is available from the Dhang-Deokhuri valleys where, besides polished stone axes, cord-marked pottery has also been found, suggesting a kind of cultural interaction with the neighbouring regions of India. At Lamahi, Ammapur, Daingaon, etc. a microlithic industry without pottery has been found which, again, reminds one of Indian contacts. Neolithic tools, comprising adzes, axes, knives and harvesters have been recovered from many localities in Sikkim, but there is no indication whether or not these were associated with any kind of pottery.

While the material from Nepal and Sikkim, coming as it does from mere explorations, does not provide a reasonable picture of the culture concerned, that from Assam and its adjacent areas gives a fairly reasonable picture of the cultural assemblage, because of the excavations conducted at a few sites, the more noteworthy being Daojali Hading in Assam and Selbalgiri in Meghalaya.

Amongst the neolithic tools obtained from these sites, particular attention may be drawn to a type known as the 'shouldered celt' (fig. 3.4). It has a rectilinear body, two prominent shoulders and a central tang, evidently meant for fastening. The cross-section is also rectangular and the entire surface is polished. It has been held by some scholars that this kind of meticulously straight and fine cutting of the sides could have been done only with metal wires and, therefore, these tools should be dated to a period after the advent of metal. But that does not seem to be a compelling argument since it is quite possible to cut the stone concerned with slivers of bamboo or shell. Another noteworthy type is what is known as 'hog-back' adze: it has a flat bottom but a markedly convex upper surface. The other stone tools are mullers, grinders, chisels, etc. Though two to three kinds of fabrics were involved in the pottery, the most prominent was a cord-impressed grey ware, often incised and stamped.

Unfortunately, we do not have any radiocarbon dates for any of the foregoing assemblages. However, the shouldered celts and hog-back adzes do point to an extra-territorial relationship, namely with southwestern China and southeast Asia. The range is very wide, between 5000 BC and 2000 BC, and, thus, precise dating is still elusive.

THE GAṄGĀ VALLEY

Descending from the Himalayas we come to the Gaṅgā valley. What was happening here in the third millennium BC is not easy to sort out. North of the confluence of the Gaṅgā and Yamunā, in Pratapgarh District of Uttar Pradesh, there are three sites, viz. Sarai Nahar Rai, Mahadaha and Damdama (Sharma, G.R. *et al.* 1980; *IAR 1977-78* and *1983-84*; Verma in press) which have yielded the remains of a mesolithic culture going back to the eighth millennium BC. It is characterized by non-geometric as well as geometric microliths. In addition, there were stone querns and mullers, hammers and sling balls, but no polished stone axes. That the people had a sedentary

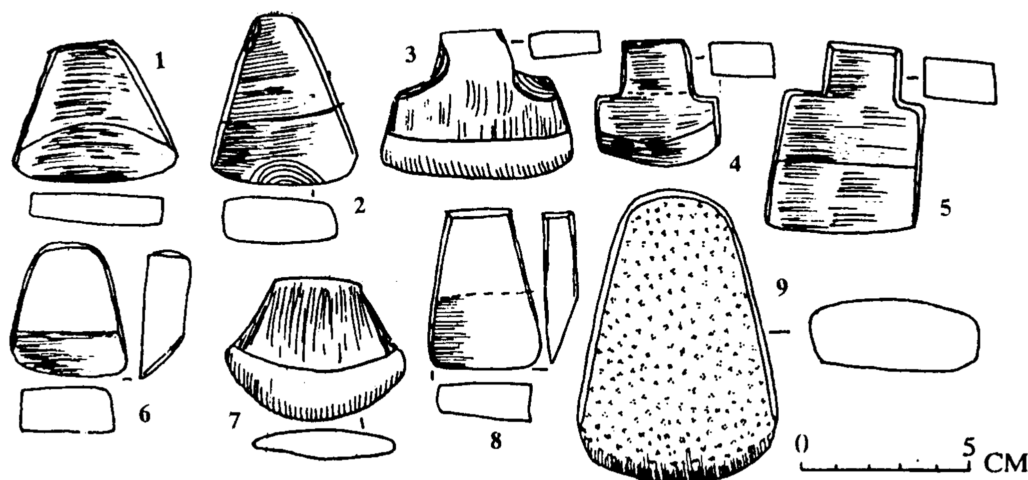


Fig. 3.4 Neoliths from northeastern India: nos. 1-6, from Deojali Hading; 7, North Cachar Hills; 8, Kamrup; 9, Arunachal Pradesh

living is indicated by the presence of floors of rammed clay, postholes and hearths. This is further suggested by the disposal of the dead. The body was usually laid supine in an extended position, oriented west-east, with the head towards the former direction. In certain cases two skeletons were found in the same grave (pl. XXB) and it has been suggested that these may represent joint burials of husband and wife: if so, a noteworthy phenomenon. The Gaṅgā alluvium obviously did not provide any stone either for the microliths or for the mullers and querns, etc. It had most probably been brought from the Vindhyas, south of the Gaṅgā, which demonstrates the capacity of these people to ferry across the river. It is most likely that their ancestry lay in the Vindhyan region where many a mesolithic site has been noted.

However, what is baffling is that whereas the Vindhyan Mesolithic people seem to have descended on the Gaṅgā valley, the succeeding Vindhyan Neolithic people do not appear to have done so. (At least that is the position in the present state of our knowledge). But what we do find in the central Gaṅgā plains is the manifestation of a somewhat different facet of the neolithic, such as at Chirand and Chechar, both in northern Bihar. However, none of the available radiocarbon dates for the neolithic of Chirand goes earlier than the beginning of the second millennium BC (Possehl 1990: 11-12).

But then was there an absolute vacuum in the Gaṅgā valley at a time when the Harappan Civilization flourished in the Indus-Ghaggar valleys in the west, only partially encroaching on the upper Gaṅgā-Yamunā *Doāb*? In the absence of any clinching evidence, one would hesitate to give a categorical answer. Nevertheless, it seems that there was no such vacuum.

Thermoluminiscence (TL) dates for the Ochre Colour Ware (OCW/OCP) from four sites, viz. Atranjikhera, Lal Qila, Jhinjhana and Nasirpur, in the valley indicate that these sites may have been contemporary, if somewhat late, with many of the Harappan settlements in the west. Of the eight TL dates, three fall between 2500 BC and 2000 BC, three

between 2000 BC and 1500 BC and only two are slightly younger than 1500 BC (Lal 1972). At Saipai, a site further southeast of Atranjikhera, this pottery has been demonstrated, by means of an excavation, to have been associated with the well-known Copper Hoards. While Saipai yielded some of the key-types, viz. harpoons, anthropomorphic figures, hooked spearheads, etc. (pl. IIA), the other types falling in this category are: antennae-hilt swords, simple as well as shouldered axes, bar-celts, rings, etc. (fig. 3.5). In this context it is worth recording that from the point of view not only of their typology, but also of metallic composition and manufacturing techniques, these Copper Hoards stand quite apart from the Harappan metal tools. Likewise, the Ochre Colour Ware (originally designated as such because of its shedding off ocherous colour, when handled), which is now known to have been a red ware, often provided with a slip and painted with designs in a black pigment, is not identical with the typically Mature Harappan Ware in terms of the forms and painted designs.

Most of the Copper Hoards have been recovered from underneath an alluvial deposit, sometimes quite thick as at Bahadarabad. Likewise, where only the OCW has been encountered, it too has been found intermixed with alluvial clay going down to a depth of about 1.5 m. It seems likely, therefore, that these sites were overtaken by a huge deluge which may have been instrumental in bringing about their end (Lal 1968). Only a few, located at higher elevations, may have survived; and it is a piece of luck, as at Lal Qila (Gaur 1995), to come across them. Thus, not much can be said about the total life-style of these people. Though fragments of kiln-fired bricks have been encountered, no houses of that material have been found. There is evidence of the domestication of the cattle. The discovery of terracotta toy-cart wheels suggests use of bullock-carts as a mode of transport. Stone querns and rubbers may have been used for grinding cereals. Beads of semi-precious stones, terracotta human figurines, gamesmen and bangles are some of the other antiquities recovered.

SOUTHEASTERN RAJASTHAN

There is another Copper Age complex which deserves to be mentioned at this point, though it does not belong to the Gaṅgā valley. West of that valley, in the shadow of the Aravallis lies the site of Ganeshwar in Sikar District of Rajasthan. The area, well known for its Khetri group of copper mines, is drained by several rivers, one of which, viz., Kāntlī, seems to have joined the Chautāng in ancient times, and another, the Sotā, provides a link with the Yamunā *via* the Sābī. These mines seem to have been exploited since antiquity and may well have provided copper to the Indus Civilization.

A chance find of as many as sixty copper celts at Ganeshwar led to an excavation, as a result of which not only more celts but chisels, spearheads, arrowheads, bangles and spiral-headed pins were also found, some of which are reminiscent of the Harappan types (Agrawala, R.C. and Kumar 1982). It must, however, be stated that, though black-on-red, the Ganeshwar pottery does not fall in the Harappan category. Likewise, the absence of any typical Copper Hoard artefacts, such as the harpoon or the anthropomorphic figure, keeps Ganeshwar apart from the Hoards. As to the chronological horizon, the excavators assign the Ganeshwar complex to the second and third quarters of the third millennium BC.

Southwest of Ganeshwar, at the tail end of the Aravallis, are Ahar, Balathal and Gilund yielding a chalcolithic complex characterized by a white-painted black-and-red ware. At Gilund was found a series of parallel walls of mud bricks with sand-packing in between (*IAR 1959-60*: 41-46). Indications are that the structure may have been a monumental one, but the limited excavation could not reveal

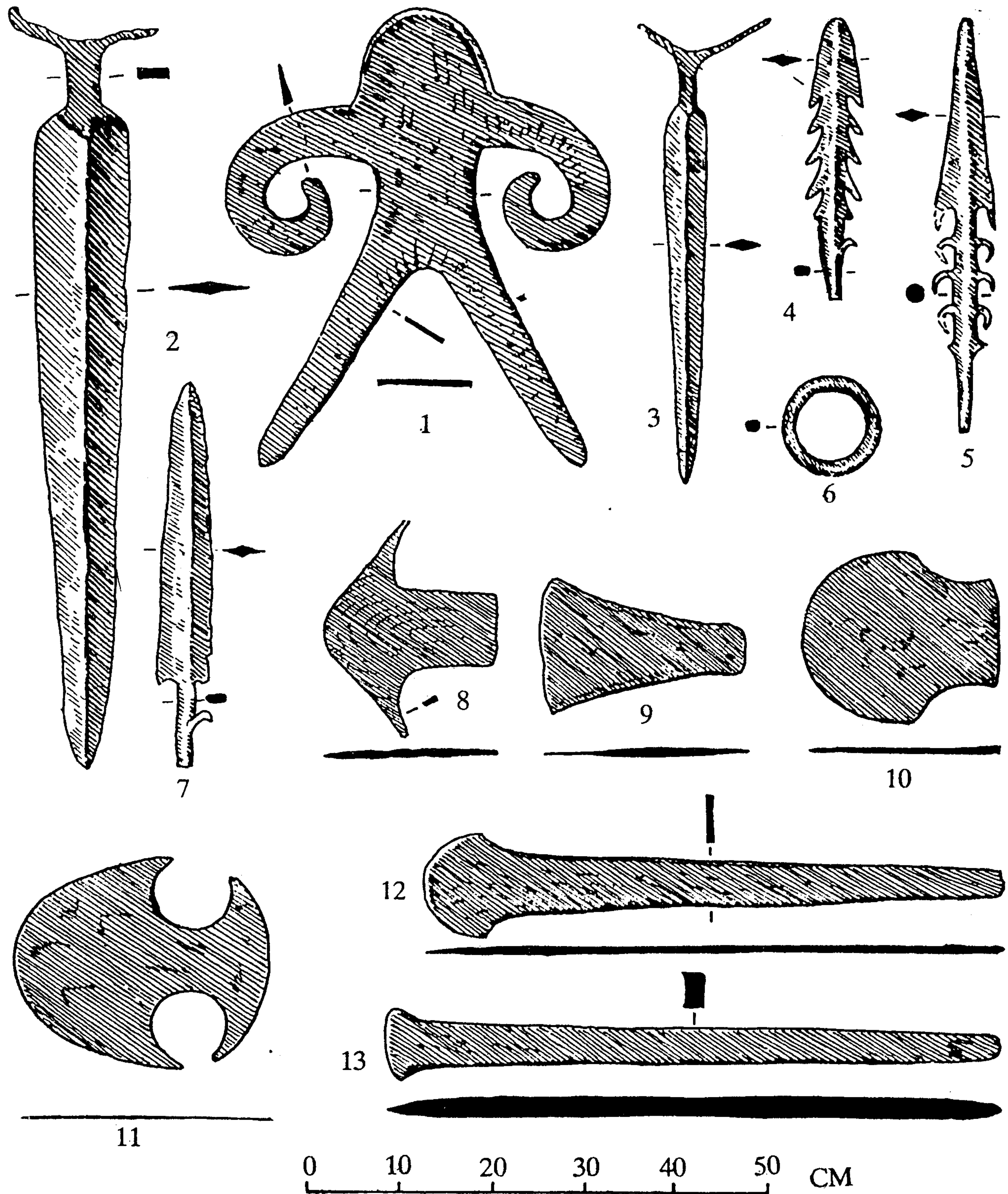


Fig. 3.5 Objects from Copper Hoard sites: 1, anthropomorphic figure from Sheorajpur; 2 and 3, antennae swords, Fatehgarh; 4 and 5, harpoons, respectively from Sarthauli and Bisauli; 6, ring, Pondi; 7, hooked spearhead, Sarthauli; 8, hatchet (*paraśu*), Sarthauli; 9, celt, Gungeria; 10, shouldered celt, Dunria; 11, double-edged axe, Bhagra Pir; 12 and 13, bar celts, Gungeria

its full identity (pl. XXA). Use of kiln-fired bricks was also attested to. Ahar has been known as Tāmbavatī Nagarī, i.e. a 'Copper City', which implies local copper smelting, of which the excavation also gave some evidence (Sankalia *et al.* 1969). Radiocarbon dates from Ahar and Balathal place this culture between ca. 2500 BC and 1500 BC, with a margin on the earlier side. Bagor in District Bhilwara (Misra 1973), goes back to the mesolithic times (Period I), for which four radiocarbon dates, ranging from 5232 BC to 3353 BC, are available, the site continued even up to the Iron Age. During Period II, which may be placed in the third millennium BC, copper tools, including three hollow-based arrowheads and a broken spearhead, were found, besides, of course, microliths continuing from the preceding period. The economy was a mixed one, based on agriculture as well as animal husbandry.

PARTS OF CENTRAL INDIA AND NORTHERN DECCAN

No clear picture is available of what was happening in central India and northern Deccan in the earlier part of the third millennium BC. However, ascribable to the later part are the chalcolithic complexes met with at the type-site of Kayatha in Madhya Pradesh and Savalda in Maharashtra. The Kayatha people lived in houses of wattle-and-daub, used a red-painted buff ware and a pinkish red ware with designs painted in a violet colour. There was also a limited occurrence of a red ware with incised decoration made probably with a comb-like instrument. The copper objects included axes, chisels and bangles (Wakankar 1967).

Though Savalda itself is located on the bank of the Tāptī, its cultural influence seems to have extended to the upper reaches of the Godāvarī where Daimabad has yielded substantial remains of this complex (Sali 1986). The people lived in well laid-out houses with courtyards, though the building material was mainly mud. The agricultural produce included a large variety: black gram, horse gram, peas, hyacinth beans, lentils and wheat. The characteristic Savalda pottery is a thickish ware with red, brownish or chocolate-pink slip, bearing designs in black and/or purplish red pigment. Cracklings, resulting from firing, are also noticeable on the surface.

It may not be out of place to mention here the chance discovery at Daimabad of four massive copper objects, viz. a wheeled chariot with a standing human figure on it and driven by a pair of bullocks (pl. VIIIB), a rhinoceros, a buffalo and an elephant (pl. VIIIA). The latter three were also provided with wheels, four in each case, though those in the case of the elephant were found missing. The subsequent excavations at Daimabad did not yield anything of the kind, though it gave a remarkable sequence of five successive chalcolithic periods: from bottom upwards, the Savalda Culture, late Harappa Culture, Daimabad Culture, Malwa Culture and Jorwe Culture.

All the four copper objects are solid and put together weigh 65 kg. Such a liberal use of copper was unheard of in the Harappan Civilization and in this context one can think only of the Gungeria Copper Hoard, which weighed over 400 kg. The Copper Hoards are usually unalloyed with tin and so are the Daimabad objects. Could it then be that the two are the products of the same cultural complex? However, much more evidence is needed to say anything final in this regard.

THE VINDHYAN PLATEAU

On the Vindhyan plateau, south of the central Gaṅgā valley, we find a somewhat continuous picture from a hunting-gathering-nomadic Upper Palaeolithic stage to a food-

producing and settled one during the Neolithic times. This is demonstrated by the combined evidence of Chopani Mando, Koldihwa and Mahagara (Sharma *et al.* 1980). All the three sites are located fairly close to one another in the Belan valley, the first-named being at a distance of about 80 km southeast of Allahabad. At Chopani Mando the occupational deposit is divisible into three phases, which have been designated, from bottom upwards, as Epi-Palaeolithic, Early Mesolithic and Advanced Mesolithic/Proto-Neolithic. The Epi-Palaeolithic, as the name indicates, was transitional from the Upper Palaeolithic showing a diminution of the blade tools. Of the Early Mesolithic two sub-phases were noted, the main distinction being the occurrence of geometric microliths in the later. Pottery, however, was still absent. Making its first appearance in the Advanced Mesolithic/ Proto-Neolithic phase, it was of two kinds, both handmade. One was an illfired, brownish grey ware, which formed the majority, while the other was a thin red ware, much better fired than the former. Both, however, bore impressed designs on the exterior. The total repertoire of the Proto-Neolithic included, besides microliths (both geometric and non-geometric), stone querns and mullers, anvils, hammers, ring-stones, etc. No polished stone axes, however, were noted. There was evidence of huts which seem to have been of wattle-and-daub, as indicated by the discovery of reed-and-bamboo-impressed lumps of clay. Koldihwa and Mahagara, however, take the story to the true Neolithic times when both animals and plants were duly domesticated and, at least in the Indian context, polished stone axes used.

Of the four radiocarbon dates assignable to the neolithic strata of Koldihwa, three fall in the seventh-sixth millennia BC and only one gives an incongruous date of around the middle of the second millennium BC. In this context it may be stated that the husk used as a degraissant in the Neolithic pottery of Koldihwa comes from a domesticated variety of rice. This would be the earliest cultivation of rice in India and amongst the earliest in the world.

Mahagara, with an occupational deposit of 2.6 m, has at least six structural phases, all Neolithic. At least twenty circular wattle-and-daub huts, belonging to various phases, were identified. Since the uppermost phase alone could be excavated horizontally, a worthwhile picture was obtained only of it. It was observed that the huts lay in a ring-like arrangement, rather than lineally, and their grouping suggested something like eight 'houses'. Another noteworthy feature of the settlement was the existence of a 12.5 x 7.5 m cattle-pen, duly fenced, as suggested by the discovery of postholes at its periphery. That this area was used for the impounding of the cattle is suggested by the impressions of the hoofs of these animals on the floor. In contrast, sheep and goats seem to have been tied near the huts themselves. Within the huts were found all kinds of objects — celts, sling balls, querns, mullers, microliths, pottery and split animal bones, throwing light on the everyday activities of the residents. The pottery, entirely handmade and mostly under-fired, showed three to four different fabrics, an outstanding feature being cord-impression on some of the specimens. The shapes included globular jars, bowls (some of which were spouted), basins and cooking vessels. If we are looking for affinities of the Vindhyan Neolithic with that of the northeastern Himalayas, we may find only one similarity, viz. the technique of cord-impressing the pottery.

As against this, one notices two conspicuous dissimilarities, viz., on the one hand, the absence of a microlithic component in the Northeastern Neolithic and, on the other, the absence of 'shouldered' celts in the Vindhyan Neolithic. Further, in the present state of our knowledge, the Northeastern Neolithic is much younger.

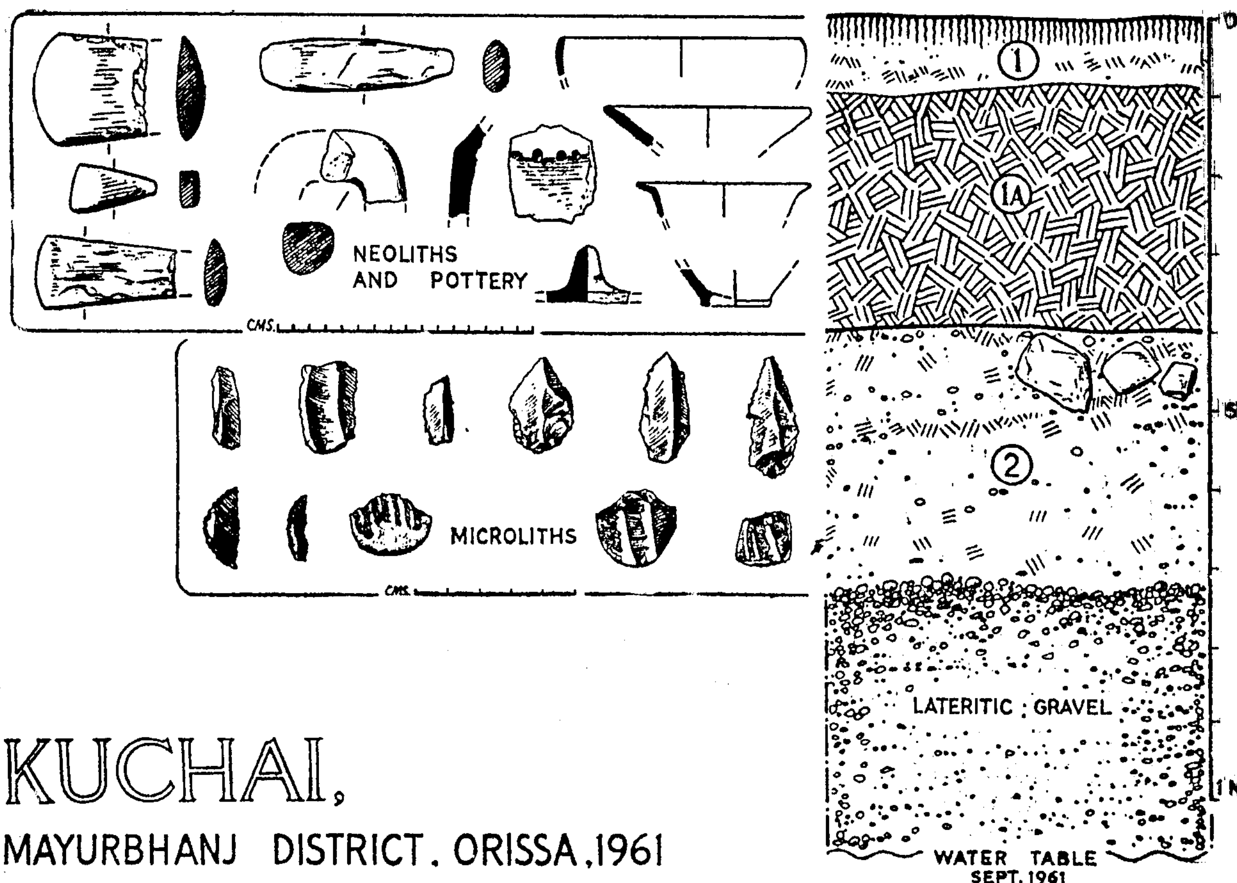


Fig. 3.6 Kuchai: Culture-sequence

EAST AND SOUTHEAST OF THE VINDHYAS

In Districts Singhbhum, Manbhum, Santhal Parganas, Mayurbhanj, etc., neoliths, including 'shouldered' celts, had been found from time to time, but it was only after the excavations at Kuchai (*IAR 1961-62*) and Barudih that a somewhat intelligible picture of the culture-complex emerged. At Kuchai, the lowest levels contained a geometric microlithic industry without pottery (fig. 3.6). With a break, it was succeeded by a neolithic complex which was associated with a coarse, gritty red ware, sometimes slipped and decorated with incised and fingertip designs. Very little, however, is known about the other aspects of the life of the people. Four radiocarbon dates for Barudih place the neolithic occupation in the last quarter of the second and the first quarter of the first millennium BC (Possehl 1990: 7). If there were any earlier stages, as seems not unlikely, we must await further evidence.

SOUTH INDIA

South of the Godāvarī one comes across a neolithic complex in the third millennium BC, which has its own distinctive personality, as compared to the Himalayan or Vindhyan Neolithic. The area involved covers Andhra

Pradesh, Karnataka and Tamil Nadu, and the valleys are those from the Kṛishṇā to the Kāverī. Kerala does not seem to have come under the sway of this culture, maybe because no river originating in the central part of South India drains out to the Malabar coast on acount of the Western Ghats. The Palghat Gap is far south, and opposite it on the east the Southern Neolithic Culture itself begins to peter out.

Although a well-defined Mesolithic phase did exist in South India, as indicated, for instance, by the Teri sites, no picture is yet available of the transition from the Mesolithic to the Neolithic. But once it comes to the Neolithic, we have a reasonably good picture. This is available because of fairly extensive explorations and well-stratified excavations at a large number of sites, of which a few more noteworthy ones may perhaps be mentioned here: Nagarjunakonda (H. Sarkar 1975) and Utnur (Allchin 1961) in Andhra Pradesh; Brahmagiri (Wheeler 1948), Maski (Thapar 1957), Piklihal (Allchin 1960), Sanganakallu (Subbarao 1948) and Tekkalakota (Nagaraja Rao and Malhotra 1965) in Karnataka; and Paiyampalli in Tamil Nadu (Narasimhaiah 1980).

As a combined result from these sites, two phases within the Neolithic itself are attested to. In the earlier phase, the people still seem to have laid greater stress on domesticating cattle than on agriculture. This is indicated by a fairly large-scale herding of the cattle in pens which were surrounded by two successive rows of palm-trunk barricades. Within the inner barricade were kept the cattle, while the space between the inner and outer barricades was used by the herdkeepers themselves. Some pens have also been noted in forest areas, indicating seasonal migration by at least a part of the population. Within these cattle-pens layers of cow-dung ash have been found, suggestive of some kind of burning. If the present is to be projected on

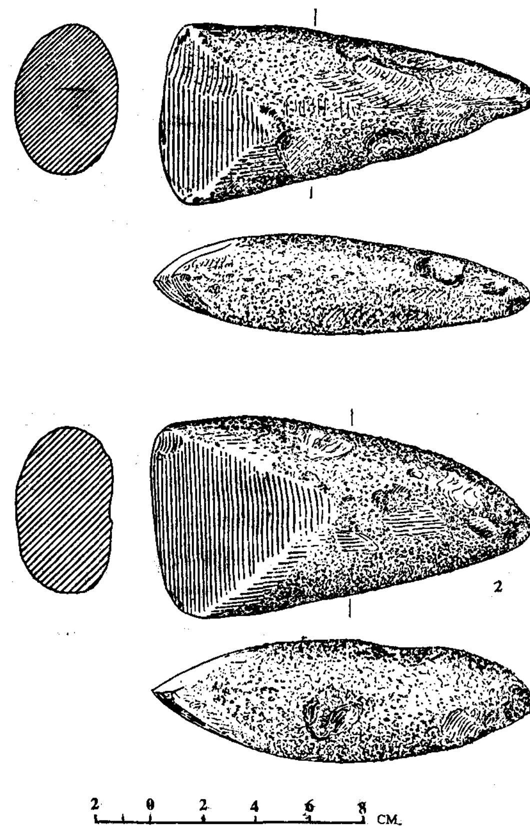


Fig. 3.7 Brahmagiri: Neoliths

the past, perhaps the practice of having a seasonal bonfire, in which the cattle are also associated, may be recalled. Besides the cattle, goats and sheep were also domesticated.

The tool-repertoire of these people included polished stone axes, microliths and bone tools. The axes had a lenticular section, pointed butt and splayed out cutting edge (fig. 3.7). There were no axes with a rectangular section nor were there any shouldered axes like the ones found in the northeastern or eastern Neolithic complex. The microliths, essentially of the non-geometric type, were evidently a carry-over from a mesolithic tradition. The bone tools were neither as prolific nor as varied as those of the Kashmir Neolithic. The pottery assemblage too is distinctive. It comprised a coarse, handmade,

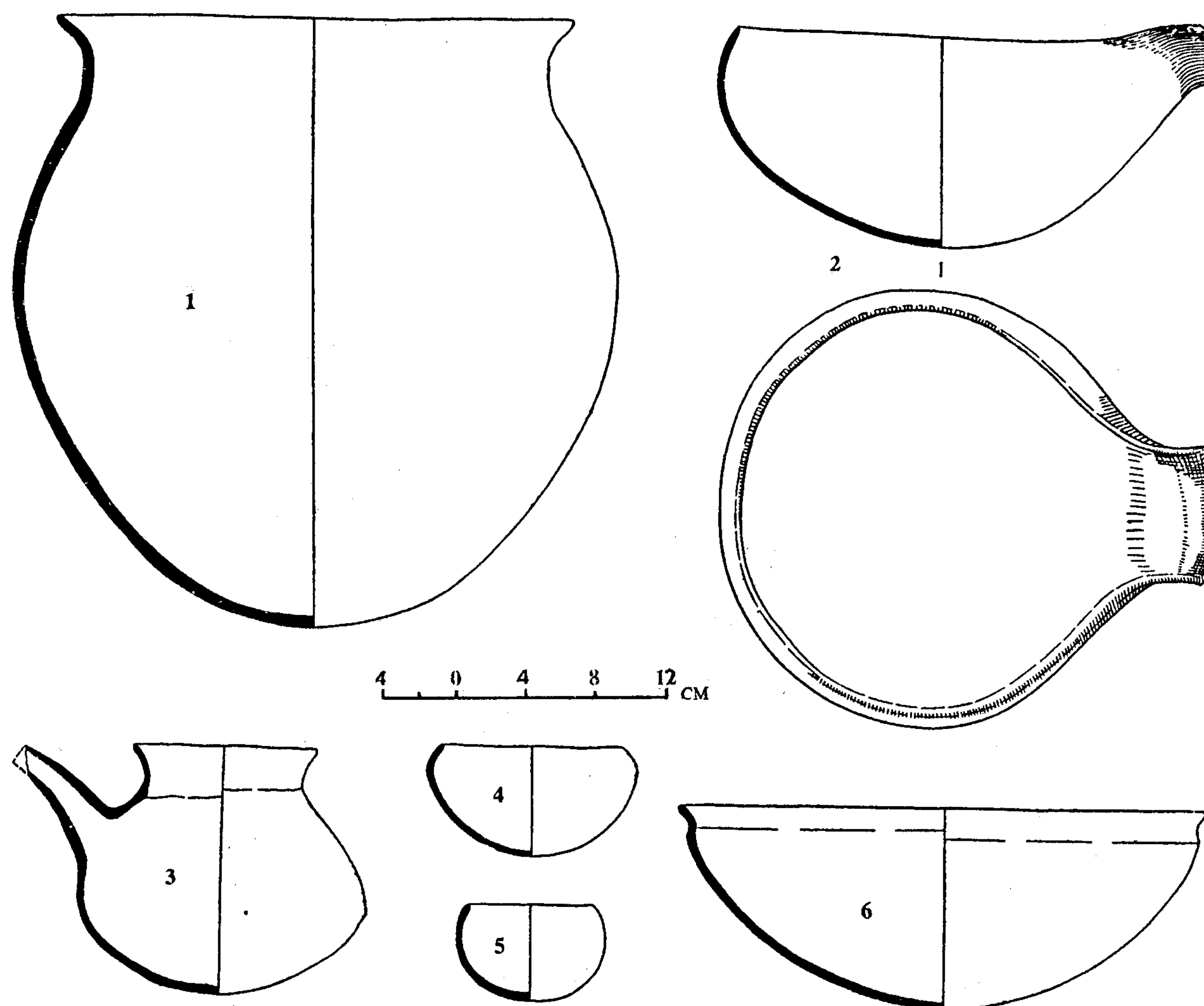


Fig. 3.8 Brahmagiri: Pottery from Neolithic burials

pale-red plain ware; a ware bearing linear designs in brownish purple colour over a red surface; and a grey one (fig. 3.8), on some of which simple bands in red ochre were executed after firing.

A somewhat more detailed picture is available of the later phase of this neolithic complex. The people lived in houses of wattle-and-daub, often using stone-rubble foundations. Besides bone tools and microliths amongst which parallel-sided blades constitute the majority, there were the ground stone tools which showed a great variety: chisels, wedges, picks, axes and adzes, in addition to querns and rubbers which may have been used for grinding cereals.

Unfortunately, not much evidence is yet available in respect of cereals except for the horse gram and millet. If, however, floatation technique is used during the course of future

excavations, one very much hopes to have a better picture of the agricultural produce of these people. Craft-objects like beads of carnelian, agate, shell and steatite are to be noted. In this context, one ought to mention also the coiled ear-ornaments of gold from Tekkalakota. In the upper levels of this later phase copper objects were also found. However, since there is little evidence of their local production, it is most likely that these objects were imports from the chalcolithic cultures that existed to the north and northwest of the Southern Neolithic Zone.

The domesticated animals included the sheep, goat, long-horned and short-horned cattle and buffalo. There is physiological evidence to suggest that bullocks were used as draft-animals. The people buried their dead: the adults were placed in an extended position in the grave (pl. XXIB) while the children were laid to rest in urns (pl. XXIA).

An indication of the artistic sense, howsoever rudimentary, of these neolithic people is given by the pecked/incised drawings and paintings in red or white colour of stylized human figures as well as animals like the bull, sheep, goat, deer, etc. that occur on the granitic rocks in the neighbourhood of the neolithic sites. It must, however, be stated that not all the drawings/paintings are ascribable to the neolithic folks, since they include the horse and even the trident.

Some of these paintings may thus belong to the neolithic-chalcolithic phase or even to the megalithic in which iron tridents have been found in the graves. Utnur has yielded three radiocarbon dates which range between 2860 BC and 2366 BC (Possehl 1990:60). This clearly shows that the beginning of the Southern Neolithic Culture is earlier than that of the Mature Harappan Civilization. (However, as it is, the Southern Neolithic Culture is later than the Vindhyan.) In its later phases, the Southern Neolithic was contemporary with and may have even survived the Mature Harappan Civilization, as evidenced by the four radiocarbon dates from Tekkalakota, the oldest and and youngest being 2023 BC and 1692 BC respectively (Possehl 1990:56).

The Andaman and Nicobar islands, situated far away from the mainland, were not affected by any of the cultural changes that took place thereon. The discovery of a large number of kitchen-middens suggests that prior to the arrival of the people from the mainland during the last few centuries, these islanders were in a fishing-and-hunting stage of economy.

Very little is known of what was happening in the present-day State of the Maldives at a time when the Harappan Civilization flourished in Gujarat. An intensive exploration is, therefore, called for.

SRI LANKA

We may now turn our attention to Sri Lanka. Extending back into the late Pleistocene and, of course, during the early Holocene there flourished on the island a material culture characterized by microliths; and, if the Thermoluminescence date, viz. 28,500 BP, for the deposits concerned in the Batadomba Cave is to be accepted, then this culture would appear to be the earliest of the type known anywhere in the world (Deraniyagala 1992; Kennedy and Deraniyagala 1989). It is significant to note that even geometric microliths occurred in the lowest deposits of this cave.

The Sri Lankan microlithic industry is similar to that from the Teri sites of South India, some special features common to both being the presence of bifacially pressure-flaked tools, association of small pitted pebbles of chert as well as choppers and cleavers of this latter material. The Teri sites of India are not dated by either the radiocarbon or thermoluminescence method, but are doubtless of comparable antiquity, as indicated by the evidence of associated Pleistocene and

early Holocene sea-levels (Zeuner and B. Allchin 1956). The similarity in typo-technology and approximate correspondence in time may well suggest a migration of the Mesolithic people from the mainland to Sri Lanka, although definite proof to establish the same may still be desirable.

However, the next cultural stage in Sri Lanka is a long leap from the Mesolithic. It straightaway takes us into the Megalithic Culture, characterized by huge-stone burial monuments and a very distinctive ceramic industry, viz. the black-and-red ware. This latter complex is unlikely to have been earlier than ca. 1000 BC. In any case, the similarity between the Sri Lankan and South Indian Megalithic cultures is so striking that, again, it is difficult to escape the suggestion of a common origin and spread (Sitrampalam 1987).

The intermediary stages, so well represented on the adjacent mainland, viz. the neolithic and chalcolithic, are surprisingly absent from Sri Lanka. At least that is the position in the present state of our knowledge of the protohistory of that country. Thus, we are at a loss to visualize what exactly was happening in Sri Lanka at a time when urbanization had begun to manifest itself in the northwestern part of South Asia around the middle of the third millennium BC. Only further intensive fieldwork can answer the question.

IV

THE ANTECEDENTS AND BIRTH OF THE EARLIEST CIVILIZATION

In the preceding chapter we had a glimpse of what was happening in the various parts of South Asia, except the northwest, in and around the third millennium BC. In most cases it was a neolithic stage of cultural development — a stage wherein mere hunting and foraging had given way to domestication of plants and animals, leading to a settled way of life, i.e. the coming into being of hamlets or a village. But in none of these areas had any step been taken to move towards what has been recognized in archaeological terminology as 'civilization', in which the various components of advanced material life manifest themselves — such as town-planning, monumental buildings, long-distance trade, use of weights and measures, a system of writing, specialization in crafts and organized civic administration.

However, as we have previously mentioned, in the valleys of the Indus and the Ghaggar (ancient Sarasvatī) and even in Gujarat there flourished around the middle of the third millennium BC a civilization which had all the above-mentioned traits and which, based on the convention of naming a culture after the place where it was first identified, is known as the Harappa(n) Culture. But surely the march from a mere neolithic stage to that of urbanization must have been long and arduous and here we propose to probe into it in some detail.

Immediately on the northwestern fringe of South Asia there lies the site of Aq Kupruk, in Afghanistan (Dupree 1972; Shaffer 1978). Over here has been encountered an epi-palaeolithic stage, dating back to ca. fifteenth millennium BC. This was followed by a neolithic one in which there is ample evidence of domestication of sheep and goat. For it there are two uncorrected (5730-half-life based) radiocarbon dates, viz. 8565±240 BC and 6960±105 BC. However, in these levels there is no evidence of the production of pottery. The subsequent pottery-bearing levels have given four dates, viz. 5806 BC, 5638 BC, 5292/5286/5241 BC and 3307-3110 BC (Possehl 1990: 3-4). Thus, on the whole the beginning of the ceramic neolithic phase on the immediate northwest fringe of South Asia may be assigned to the sixth millennium BC.

Back within the South Asian border itself we find that as far back as 1950-51 Walter A. Fairservis had unearthed evidence of a pre-pottery neolithic culture at Kile Ghul Mohammad (also spelt as Kili Gul Muhammad: fig. 4.1), 3 km northeast of Quetta, in Baluchistan (Fairservis 1956). The culture was char-

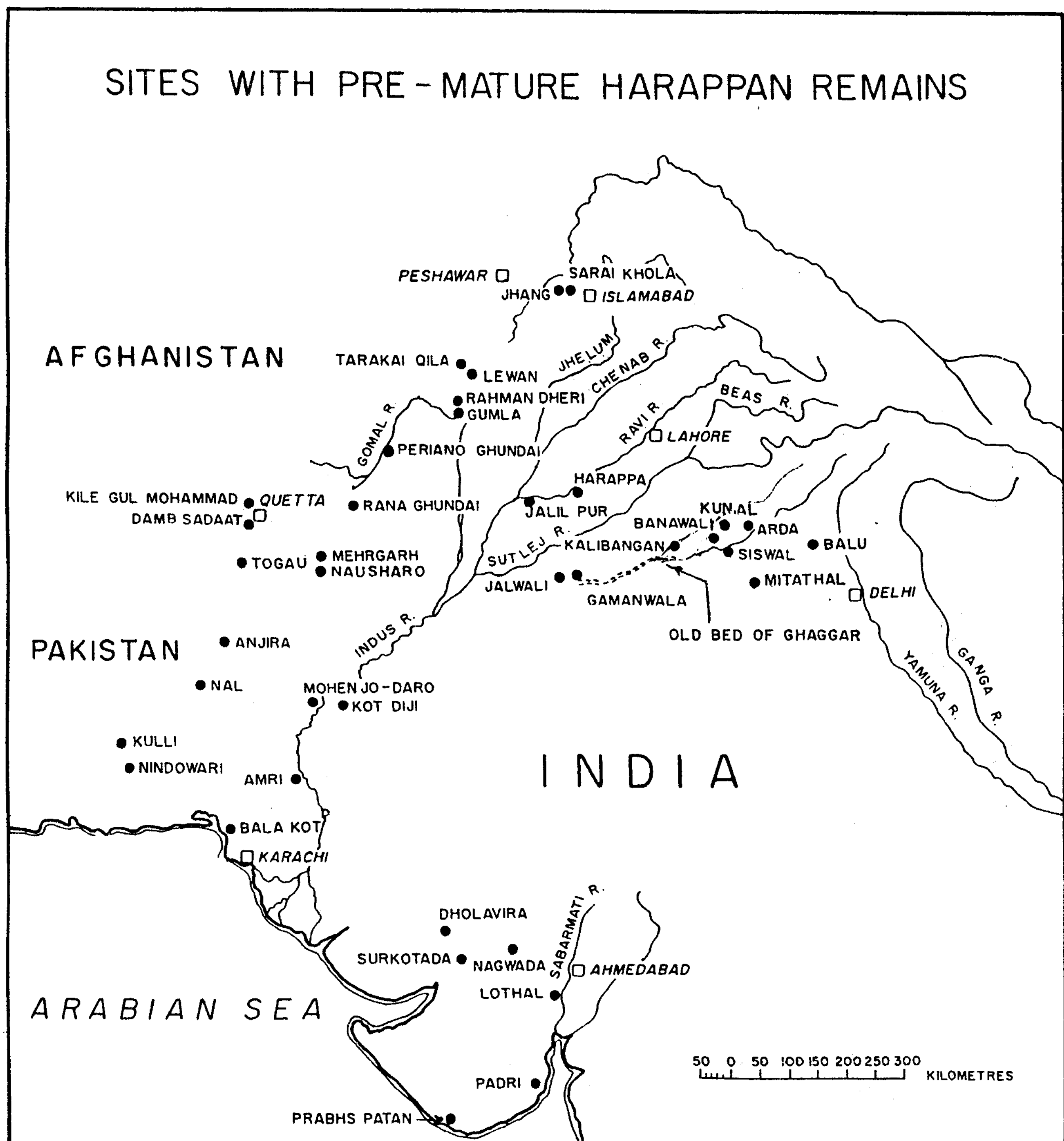

SITES WITH PRE-MATURE HARAPPAN REMAINS
AFGHANISTAN
PAKISTAN
INDIA
ARABIAN SEA
PESHAWAR
SARAI KHOLA
JHANG
ISLAMABAD
TARAKAI QILA
LEWAN
RAHMAN DHERI
GUMLA
PERIANO GHUNDAI
GOMAL R.
JHELUM
CHENAB R.
BEAS R.
RAVI R.
LAHORE
HARAPPA
JALIL PUR
KILE GUL MOHAMMAD
QUETTA
DAMB SADAAT
RANA GHUNDAI
KUNAL
BANAWALI
ARDA
SUTLEJ R.
KALIBANGAN
SISWAL
BALU
TOGAU
MEHRGARH
NAUSHARO
JALWALI
GAMANWALA
MITATHAL
DELHI
OLD BED OF GHAGGAR
INDUS R.
ANJIRA
NAL
MOHEN JO-DARO
KOT DIJI
YAMUNA R.
GANGA R.
KULLI
NINDOWARI
AMRI
BALA KOT
KARACHI
DHOLAVIRA
SABARMATI R.
SURKOTADA
NAGWADA
AHMEDABAD
LOTHAL
PADRI
PRABHS PATAN
50 0 50 100 150 200 250 300
KILOMETRES

Fig. 4.1

acterized by the presence of microliths some of which may have been used for harvesting, structural remains of wattle-and-daub and domestication of the cattle, sheep and goat. The occupation that followed (Period II) yielded, besides the foregoing, a handmade crude ware, sometimes bearing basket-impressions and, more rarely, simple or wavy painted lines, heralding the beginning of a pottery-era. Period III ushered in still another change. In it we find the introduction of metal. Besides, a new kind of pottery also made its appearance: a wheel-turned red ware with designs like triangles, stars, loops, etc., painted in black pigment. Amongst the shapes, the open bowl is particularly to be noted. The uppermost levels (Period IV) produced an effect of polychromy on the pottery, with the use of red paint in addition to the black. In another variety, white paint was used over a black or dark red surface. Besides ordinary bowls, those with pedestals also came into being.

This, in brief, was the sequence of the site. Now, whereas the remains of Periods III and IV had already been noted earlier at other sites in Baluchistan and thus there was no difficulty in accepting the same, scholars were wary about the discovery of the neolithic culture, more so of a pre-pottery neolithic, since in the early 1950s it was common thinking that these stages were the preserve of areas only further to the west. This remained so in spite of the fact that the uppermost levels of Period I gave three radiocarbon dates, viz. 4352 BC, 4346 BC and 4210 BC (Possehl 1990: 29) and that there were further occupational deposits of 4 metres below these levels. All this clearly implies that the beginning of the pre-pottery neolithic occupation at Kile Ghul Mohammad would go back to somewhere in the sixth millennium BC.

Although a couple of other sites, such as Gumla, Rehman Dheri, etc., giving a further glimpse of the neolithic complex of the northwest were excavated after the work of Fairservis at Kile Ghul Mohammad (KGM), we propose to take up at this point the site of Mehrgarh, though excavated later, since it is not only in geographical proximity of KGM but has also revealed, in conjunction with its neighbouring site of Nausharo, a fairly detailed picture from the pre-pottery neolithic stage dating back to ca. seventh millennium BC right up to the second millennium BC (Jarrige 1981, 1982, 1984, 1986, 1988, 1989; Jarrige and Lechevallier 1979).

As the crow flies, Mehrgarh is situated at a distance of about a hundred kilometres from KGM. The geophysical difference between the two sites, however, is that whereas KGM lies within a hilly terrain, Mehrgarh is on the piedmont area facing the vast Indus plains. It is this change of environment which must have provided the much-needed opportunity to expand. Cutting through the Kirthar Range is the Bolan river, after which the pass is also named. Just where the river debouches on the slopes there begin the Kachhi (also spelt as Kacchi and Kachi) plains and it is here that Mehrgarh is located. The overall area covered by the ancient settlement measures a little over a kilometre along the river. Initially, the habitation was hugging the river but, as time passed, it kept on expanding away from it, some parts of the settlement lying as far away as 2 km. However, it needs to be emphasized that not all the parts were occupied simultaneously. There was a shift in the habitation from time to time. The excavators have named the southern area as MR-1, the central area as MR-2, the northeastern areas, hugging the Bolan river, as MR-3 and MR-4, and the northwestern areas as MR-5 and MR-6.

The lowest levels of Mehrgarh, encountered in MR-3, are of special interest to us since they give a reasonably good picture of what the earliest settlement in this piedmont

area adjacent to the Indus plains was like.[1] It was a neolithic culture in which stone and bone tools dominated the scene. The heavy-duty stone tools comprised polished axes, adzes and chisels while the lighter, i.e. the microlithic ones, included parallel-sided re-touched blades, borers, scrapers, triangles, trapezes, lunates and microborers. The stone axes and adzes must have been used for cutting down trees and bushes — an action necessary for preparing the ground for cultivation, whereas the smaller ones like blades, some of which were serrated, must have been used for harvesting and the triangles and trapezes may have been mounted as arrowheads for hunting small games and birds. Besides stone tools, the repertoire included those of bone, dominated by awls which may have been used for stitching some material.

The thickness of these neolithic deposits is in the neighbourhood of 10 m, of which, it needs to be emphasized, the lower three-fourths (called Period IA), were bereft of pottery. It is only in the later part (Period IB) that a coarse ware with basket-impressions made its appearance. The neolithic economy rested on hunting as well as herding animals and cultivating cereals. It is interesting to note that whereas in the lower levels the bones of wild animals such as the gazelle (*Gazella dorcas*), wild sheep (*Ovis orientalis*), swamp deer (*Cervus duvauceli*) and wild cattle (*Bos namadicus?*) predominated, in the upper levels the position considerably changed and the faunal remains were by and large those of domesticated animals. These latter included the sheep, goat and cattle. In this context it is worth noting that in the neolithic levels in West Asia it is only the goat and sheep and not the cattle that played an important role. However, more interesting is the occurrence of the bones of water-buffalo (*Bos bubalis*), which would appear to be the earliest example of the domestication of that animal in South Asia.

The evidence about the cereals is no less interesting. These include: einkorn wheat (*Triticum monococcum*), emmer wheat (*T. dicoccum*), and bread wheat (*T. durum/aestivum*); and two-row hulled barley (*Hordeum distichum*) and six-row barley (*H. vulgare and H. vulgare* var. *nudum*). This is quite an impressive turnover for a people living in the seventh-sixth millennia BC — at least three millennia before the Harappan Civilization. It appears that some fruits like jujube and dates were also added to the dietary.

The houses were made of mud bricks whose sizes, viz. 28 x 14.5 x 7 cm and 33 x 14.5 x 7 cm, are of interest. The former yields a ratio of 4:2:1 which is the ratio of the bricks used in the Harappan times and thus shows the antiquity as well continuity of a concept. While the residential houses were multi-roomed, with interconnecting doors, some of the structures call for special attention. For example, a few buildings had small cells with no doors, suggesting that these might have been used for storage, most likely of grains.

These neolithic people buried their dead not underneath their houses as did the later-day South Indian neolithic people, yet not far away from their residences. The body was placed in a pit either in an extended position or flexed, lying on the right side. It was sometimes covered with red ochre of which lumps were also found in the graves. The excavator states (Jarrige 1982:82) that 'in one case the traces of a red ochre-coloured textile

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[1] Recently, L. Wengler discovered Middle Palaeolithic tools in the glacis overlooking the Bolan river. This raises the hope of further discovery of an epi-palaeolithic assemblage which may have ultimately given rise to the mesolithic-microlithic component of the Mehrgarh neolithic complex. (*Pakistan Archaeology*, nos.10-22, 1974-86, p. 64.)

were visible on the bones'. The accompanying grave-goods were pretty rich and included necklaces of micro-beads of steatite interspersed with those of turquoise and lapis lazuli. There were ornaments of seashell as well. Though surprising in an aceramic neolithic context, the presence of a bead of copper in one of the burials is also worth noting. However, as if to complete the repertoire, there were the working tools too — stone axes and a variety of microliths. Though there was no pottery, stone vessels did find a place. Likewise, there were baskets coated with bitumen to make them impervious. What is still more exciting is that in two cases bodies of five young ones of goats were also interred.

If we analyze the grave-goods, we get some interesting insight. For example, to place the young ones of goats would imply large-scale domestication of these animals. It is only then that so many kids could be had. Since only some graves had these and not others, it would also imply that the persons concerned were economically better off and perhaps socially more privileged.

The manufacture of very tiny beads of steatite calls for a specific technique and would do credit to these neolithic craftsmen. Likewise, the presence of beads of turquoise and lapis lazuli and of the ornaments of seashell has its wide-ranging economic and, more so, organizational implications. None of the aforesaid three materials is available in the neighbourhood of Mehrgarh. While lapis lazuli is likely to have come from Afghanistan, turquoise may have been obtained from Iran or Central Asia, although the possibility of exploiting some sources in Baluchistan may also be considered. The seashells too must have been brought from a distance of at least 500 km to the south, viz. from the Arabian Sea. All this would mean long-distance trade, which would simultaneously envisage a fairly good organizational set-up. This should also tempt us to look for some contemporary archaeological remains near the seacoast. Is then there a possibility of a pre-Balakotian phase somewhere in the neighbourhood of that site?

We may now discuss the chronological horizon of the neolithic culture at Mehrgarh. For it, altogether eighteen radiocarbon dates are available: eight for Subperiod IA and ten for Subperiod IB (Possehl 1990: 35-36) as shown in the Table on p. 37.

It would be seen that there is a considerable overlap between the dates of Periods IA and IB, although physically the former clearly underlay the latter. While it is true that radiocarbon dates cannot always be taken as the gospel truth, since there are many factors that lead to discrepancies, these do give us a rough estimate of the period dealt with. Setting aside the two *prima facie* erratic dates, viz. 31680+3090,±2265 BC and 11,790±130 BC, we find that two samples (BETA-1407 and BETA-1408) give us the earliest dates for Subperiod IA, viz. 5980 BC and 5749 BC respectively. The latest dates for Subperiod IA, as indicated by samples LY-1948 and LY-1949 are 4653/4648/4581 BC and 4360 BC respectively. Again, if we take up the earliest two dates for Subperiod IB, these are 5238 BC and 5190/5058 BC. Likewise, the two latest dates for Subperiod IB are 4892/4887/4841 BC and 4782 BC. Thus, if one goes absolutely by these dates, one would have to say that Subperiods IA and IB more or less co-existed. But the excavator has stated that there was a 7.5-m thick deposit of the non-ceramic Subperiod IA which clearly preceded the pottery-bearing Subperiod IB. Unfortunately, however, a depth-wise break-up of the samples is not available and thus it is not known if the earliest levels of Subperiod IA are duly covered by these samples. Under the circumstances, the best one can make out of these radiocarbon dates is that the beginning of the neolithic occupation as a whole at Mehrgarh

SUBPERIOD	LAB NO.	HALF-LIFE 5730	CALIB-2
I B	LV-910	4105±105 BC	4782 BC
I B	LV-909	4170±5 BC	4892,4887,4841 BC
I B	LV-906	4180±65 BC	4894,4883,4845 BC
I B	LV-907	4250±80 BC	4937,4917,4907 BC
I B	LV-908	4325±70 BC	5046,5019,5004 BC
I B	LV-993	4345±95 BC	5190,5058 BC
I B	LV-994	4530±70 BC	5238 BC
I B	LY-1950	6745±260 BC	None
I B	BETA-1719	11,790±130 BC	None
I B	LY-1946	31,680+3090, -2265 BC	None
I A	LY-1949	3745±185 BC	4360 BC
I A	LY-1948	3940±750 BC	4653,4648,4581 BC
I A	LY-1947	4055±195 BC	4725 BC
I A	BETA-2686	4085±70 BC	4777 BC
I A	BETA-7316	4220±125 BC	4931,4928,4901 BC
I A	BETA-1408	5185±80 BC	5749 BC
I A	BETA-1407	5380±300 BC	5980 BC
I A	BETA-1721	7715±125 BC	None

was in the neighbourhood of 6000 BC, with the proviso that if there are still some undated lowest levels, the beginning may well go back into the seventh millennium BC. With a total occupational deposit of 10 m, the end of Period I may be placed around 4500 BC.

In continuation of Period I is Period II which, largely on the basis of pottery, is divisible into three Subperiods, viz. IIA, IIB and IIC. The handmade, basket-impressed, coarse ware, of which a limited number of sherds were encountered for the first time in Subperiod IB, continued, in an increasing quantity, in Sub-period IIA. By Subperiod IIB it came to be better fired and the clay used was also better levigated. It is in Subperiod IIC that wheel-made pottery made its appearance. With the body-hue varying from buff to reddish, the vessels were painted in black pigment and the designs included simple bands along the rim, straight and curved lines flowing down from the rim and rows of dots or criss-cross squares occupying a part of the body. No floral or faunal motifs were involved. Sometimes the effect of biochromy was given by painting the design in black over a red band. The shapes included bowls with a tapering profile and globular vases with a collared rim. This

wheel-turned pottery is similar in many ways to that from Period II at Kile Ghul Mohammad and further west to that from the earliest levels of Mundigak in Afghanistan. This similarity is suggestive of intercommunication between the submontane plains of the Indus on the one hand and the hill-hemmed plains of Afghanistan on the other, most likely *via* the Bolan and Khojak passes.

As regards the stone tools, it may, however, be added that the use of axes and adzes began to decrease, while larger blades dominated in the microlithic component. In this context, special attention may be drawn to the occurrence of two 'sickles', each consisting of three bladelets set obliquely in wood with bitumen as the adhesive medium. At one spot about a hundred bone awls were discovered suggesting the existence of a bone-tool workshop. Here it would be well worthwhile referring to the occurrence of an elephant tusk, bearing groove-marks. This is perhaps the earliest evidence of ivory-working in the greater Indus valley. Copper industry is represented only by a ring and a bead, suggesting that metal was still in a low key. One may also note the presence of two terracotta human figurines, one of which is in a sitting posture with outstretched legs. There were also terracotta bangles with a triangular cross-section.

The cereals included, besides the various kinds of wheat and barley found in Period I, a new variety of barley, viz. *Hordeum sphaerococcum*. The significance is that this variety of barley can be grown only in irrigated fields, implying thereby an advanced stage of farming. Besides these food-cereals, what is noteworthy is the occurrence of some seeds of cotton. It is not clear if these were domesticated or wild, but since these lay intermixed with the grains of domesticated wheat and barley, it is not unlikely that these too were domesticated. In any case, the exploitation of cotton seeds at this early date is of significance. It may have been used for extracting oil or even for manufacturing some sort of textile, an indication of which was had even in Period I.

Referring to the structures of Period II, one would like to make a special mention of one which consisted of a narrow corridor on each side of which there were five, again narrow, compartments. No doors were noticed, though at places the structure is available to a height of one metre. Chances, therefore, are that it was a granary. This assumption seems to be upheld by the fact that impressions of wheat and barley were noticed inside the compartments. Also, the two sickles mentioned earlier were also met with in one of the compartments.

Wide-ranging as they are, the radiocarbon dates do not focus sharply on Period II. These are: 4465 BC, 4350 BC and 4318/4285/4246 BC for Subperiod IIA; and surprisingly go back to 5980 BC for Subperiod IIB, the only other date for this Subperiod being 4235 BC (Possehl 1990: 35-36). In broad terms, therefore, Period II as a whole may be placed between the middle of the fifth millennium BC and its end.

To the south of areas MR-3 and MR-4 and separated from these by rain-gullies is the central part of the mound, called MR-2. Over here, on the natural soil was found a scanty deposit of Period II, followed by material marking Period III. The pottery of this latter period has been found scattered over 50 hectares. Thus, even granting a shift of habitation within Period III itself, it has to be conceded that the size of the settlement had grown considerably by this time. During this period there was an explosion in the painted designs. The most conspicuous was the depiction of birds and animals in a row, as if marching in a procession (fig. 4.2). The long-legged birds with prominent beaks might be cranes (?), while the animals with long,

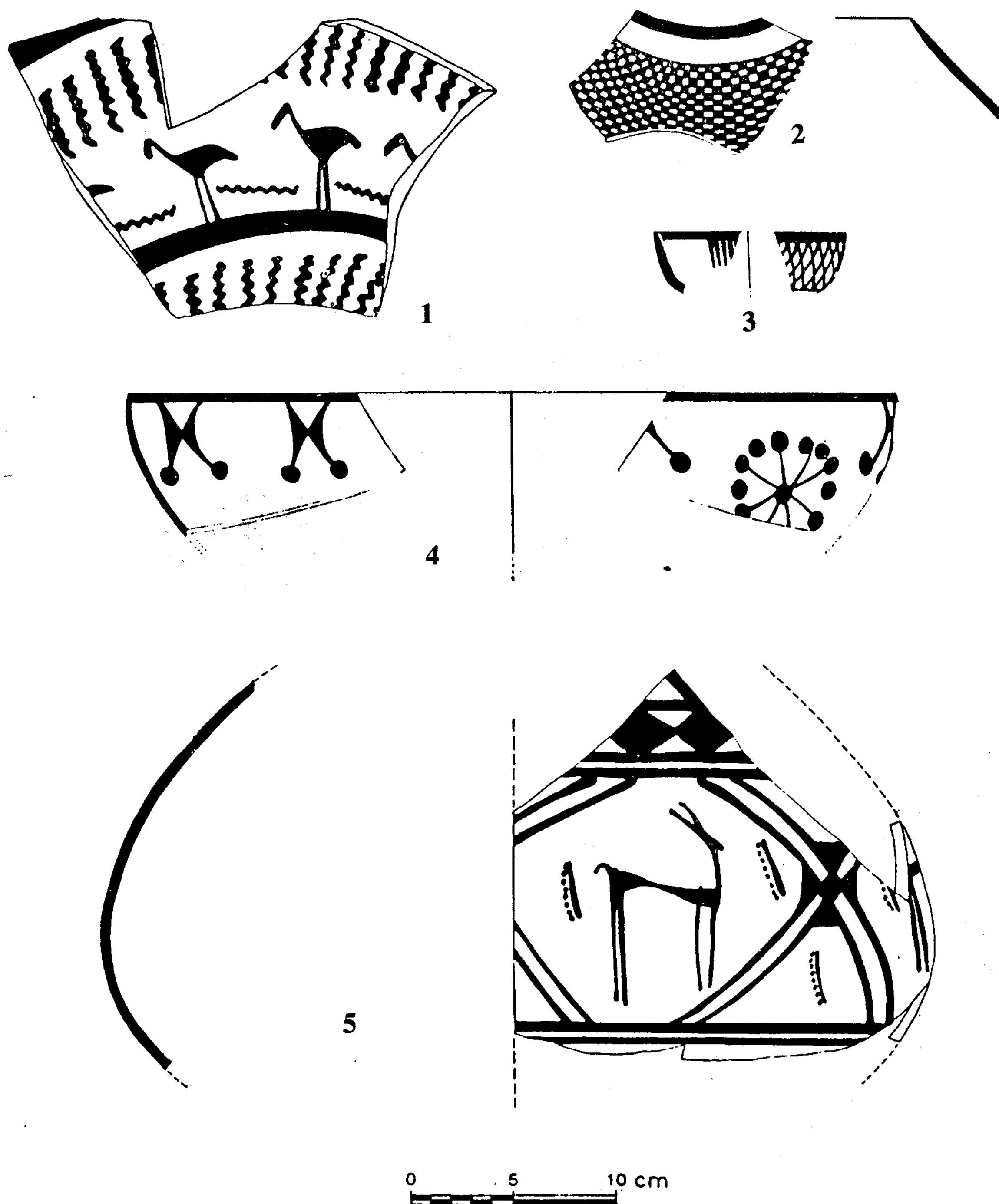


Fig. 4.2 Mehrgarh: Pottery from Period III

straight or curly horns were evidently the deer (gazelle?). Often these animals were encased in diamond-shaped spaces created by oblique intersecting lines having a maltese cross at their junction. Amongst the other designs mention may be made of hatched triangles, squares and dot-tipped lines radiating from a centre. The last-named motif occurs at Kile Ghul Mohammad and even as far east as Kalibangan in the Pre-Mature Harappan levels. Pottery painted with a row of caprids has been found at a large number of sites in Baluchistan (Togau A), Afghanistan (Mundigak I, 3), Iran (Sialk III, Hissar IB & C) and even Central Asia (Namazga II). It, however, remains to be examined how this motif spread. Along with the above-mentioned pottery there also occurred a greenish ware which, when wet, was impressed with fingers. This gradually developed into a 'Wet Ware'.

Period III is also to be noted for the earliest occurrence of oats (*Avena* sp.) and for the addition of one more variety of wheat, viz. *Triticum sphaerococcum.*

On the technological side, one must draw attention to the presence of a large number of drill-bits of phtanite (a greenish stone) in association with beads, clearly pointing to the existence of a lapidary's workshop. The ends of these drills are slightly hollow suggesting that these were manipulated with a bow. It is interesting to note that such drills have also been found in the pre-Harappan levels of Amri (Periods I and II; Jarrige 1984: 297). Their occurrence at Chanhu-daro in the Harappan context clearly establishes a case for the continuity of the technique. Metallurgy also got a fillip as evidenced by the find of many fragments of crucibles with traces of melted copper, and of bun-shaped ingots of that metal. These appear to be the forerunners of what was to come at Lothal and Mohenjo-daro in the Mature Harappan context. Terracotta animal figurines, rattles and bangles (also in conch with incised decoration) are amongst the other finds.

Amongst the structural remains of this period there are two which call for special attention. Roughly square and oriented approximately along the cardinal directions, these are planned more or less on the same pattern. In the western half of these structures there is a north-south corridor running all the way from one end to the other. On its west there are eight rectangular cells with the longer axis east-west. To the east of the long north-south corridor there are also eight rows of cells. There is, however, some minor difference in their size. While in one case (fig. 4.3), each row has a rectangular and a square cell, in the other, there are two rectangular cells (smaller in size than in the previous case) and a square one (fig. 4.4). In this latter case, at the northern and southern ends the break-up is in four squares. These were evidently not living houses: small sizes of the cells and absence of doors militate against that possibility. For all one can guess, these could have been granaries — perhaps anticipating the granaries at Harappa and Mohenjo-daro. We have noted the presence of celled structures as early as Period I. But in their case the size was smaller and those may have been granaries for the family. The granaries of Period III, being much larger, may well have had other socio-political ramifications. If these indeed were granaries, it would appear that they were controlled by some authority which may have been that of the chief who got the cereals in the form of taxes or tributes and redistributed them as payments for civic works or similar purposes. In the alternative, we have to visualize a community set-up to collect and redistribute the produce. All this would be in keeping with the fast growing size of the population as indicated by the extensive area covered by the settlement.

Radiocarbon dating does not help us in fixing the chronological horizon of this period. There is only one date, viz. 5474/5435/5426 BC

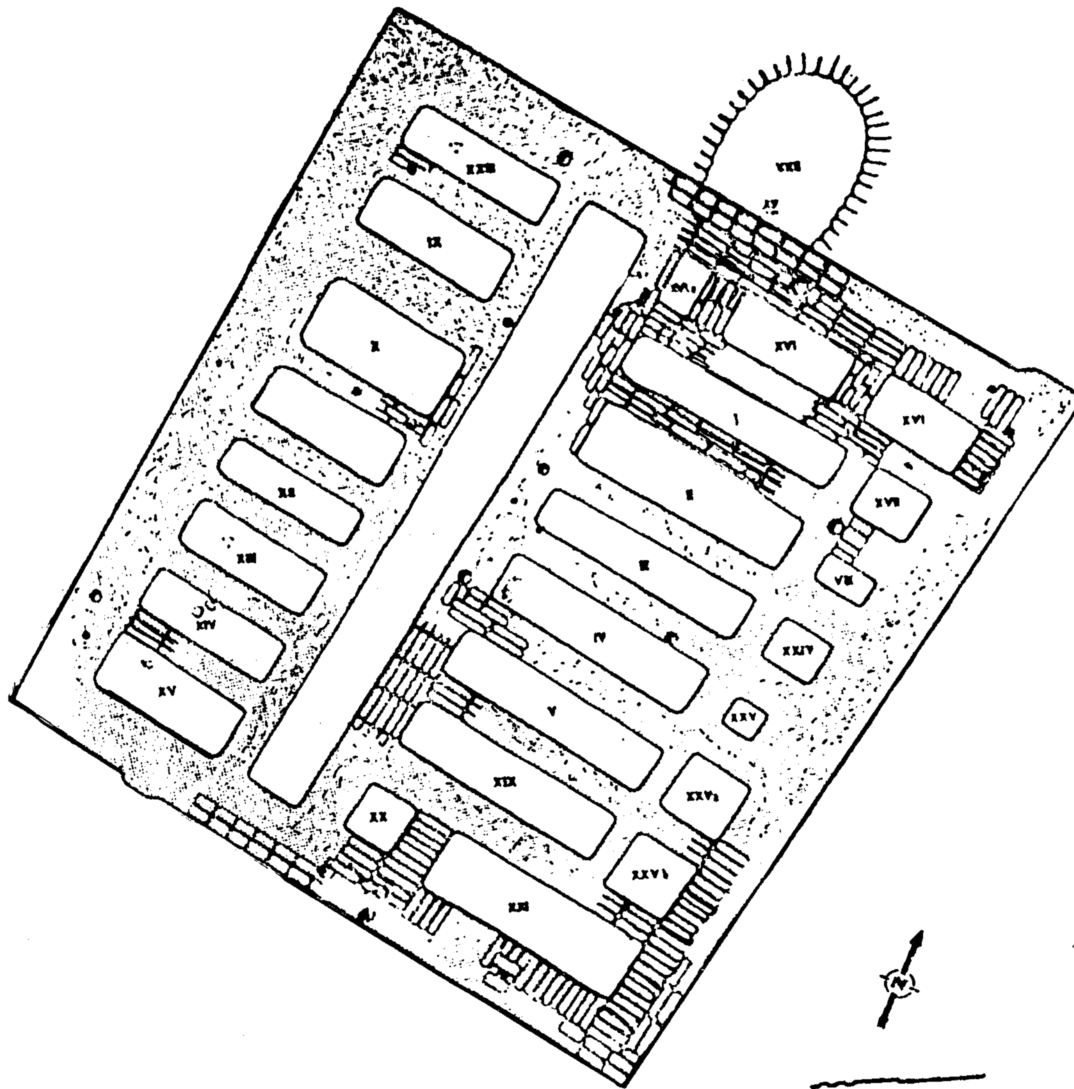


Fig. 4.3 Mehrgarh: Granary, Period III

(Possehl 1990: 35), which, to say the least, is quite out of context, since it would place Period III right in the middle of Period I — a position *prima facie* untenable! Thus, in view of the aforementioned dating of Period II and of the continuity between Periods II and III, the latter may be placed in the first half of the fourth millennium BC.

By Period IV, the occupation extended further southward, towards MR-1. It is marked by the emergence of polychrome pottery (fig. 4.5). Besides the usual black, there were two more colours, viz. white and red. The designs were essentially geometric — concentric rectangles, diagonally crossed squares, placed in a series of horizontal registers. A new and noteworthy shape was that of a tall goblet with wide mouth and

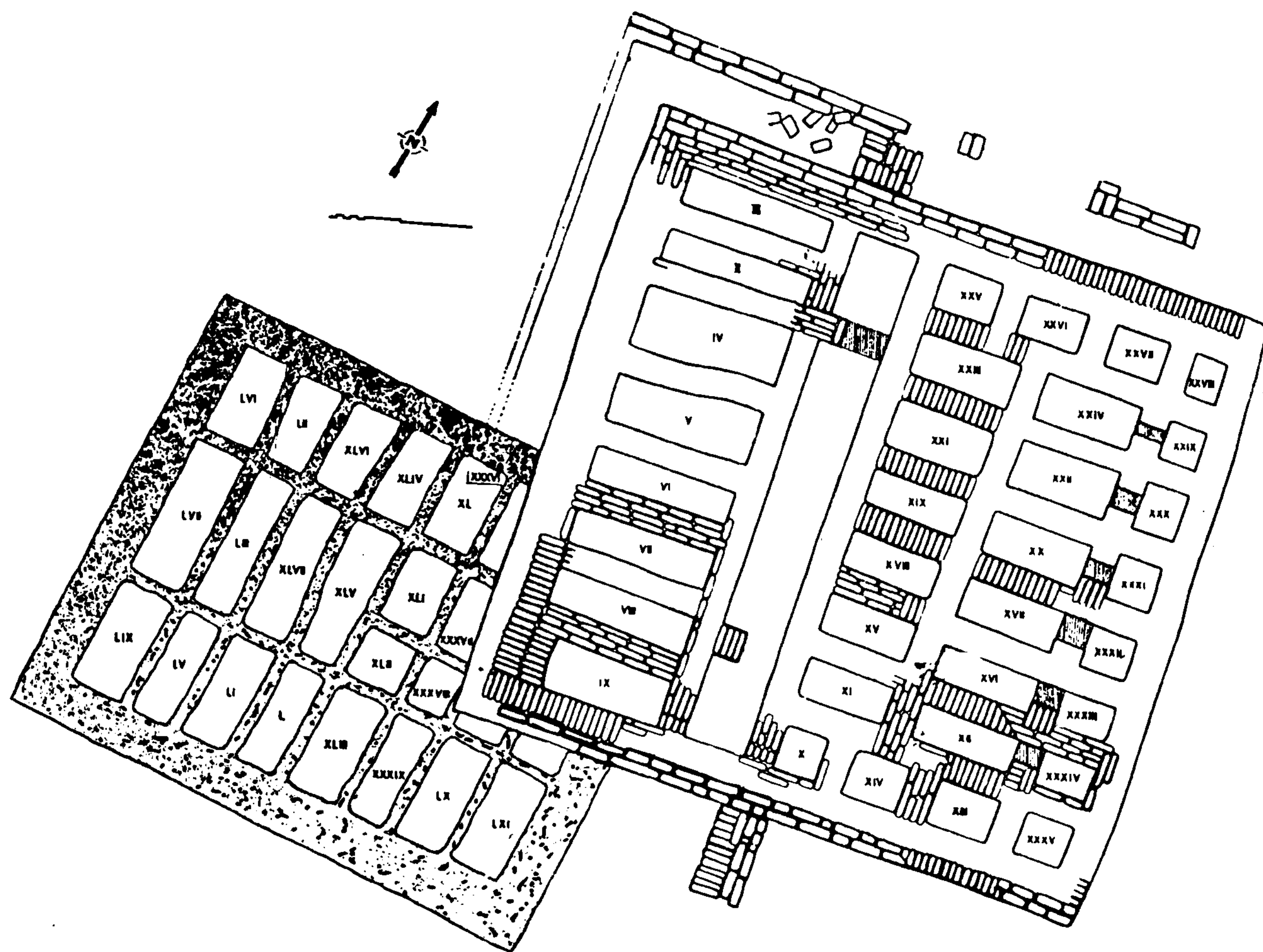


Fig. 4.4 Mehrgarh: Granary, Period III

tapering down to a small pedestal-base (pl. I). It may also be stated that the naturalistic depiction of caprids in Period III came to be stylized, assuming stiff and even geometrical delineation. The overall design-repertoire is comparable to that found in other parts of Baluchistan (Kechi Beg, Togau B) and even in Afghanistan (Mundigak I). Though the painted pottery is conspicuous because of its sophistication and pleasing designs, it accounted for only about 15 per cent of the total. In the plain ware two extremely divergent types of fabrics were notable, one very thin, eggshell like, used for goblets, and the other, sturdy, for storage jars.

Some interesting evidence was recovered from the structural remains of this period. In one of the houses traces of a wooden lintel were found over a door which was only 1.10 m in height. This would indicate that the people had to bend in order to enter the room. Such low doors continued even later and in fact were to be found until recently in rural areas of the Indo-Pakistan subcontinent. Roof-

ing material, met with in another house, included a series of wooden rafters placed parallel to one another and supported from underneath by a crossbeam. The rafters may have been overlain by reeds, etc. to provide a certain amount of thickness, as was noticed in the collapsed remains of a roof at Kalibangan.

Amongst the more noteworthy antiquities of this period mention may be made of armless terracotta female figurines with a somewhat cylindrical head, pinched nose and pendulous breasts, seated with outstretched joint legs (pl. XXIIA), and of stamped seals of terracotta and bone. The very fact that seals had come into being points towards commercial transactions in which they are most likely to have been used.

There are two radiocarbon dates for this period, viz. 2877/2800/2780/2712/2708 BC and 1997 BC. These appear to be late, particularly the last one. If there was a continuity of occupation from Period III to Period IV, as the excavator holds, a date between 3500 BC and 3000 BC may perhaps be more appropriate. Indeed, here is a case where the radiocarbon dating leaves us in a lurch!

A short-lived Period V, for which there are no radiocarbon dates and thus in the general context of the site can only empirically be placed around 3000 BC, is marked by a decrease in polychromy. The designs (fig. 4.6) included chevrons, squares and hatched diamonds, reminding one of the Togau 'D' motifs. However, more noteworthy was the appearance of a grey (sometimes reddish grey) ware painted with geometric, floral and faunal designs, the more noteworthy amongst the latter two being the pipal-leaf and fish respectively.

Period VI, assignable to the first quarter of the third millennium BC — the only available radiocarbon date is 2470 BC (Possehl 1990: 36), witnessed an explosion in pottery styles, signifying not only local growth but also interaction with regions in Baluchistan, Afghanistan and even Iran on the west as well as those on the Indus plains on the east. Large circular kilns, found with burnt pebbles at their bottom and full of ash and a tremendous amount of potsherds signify the place where the pots are likely to have been manufactured. The pebbles were evidently used for maintaining heat for a longer period after the fuel had run out.

The black-and-white-on-red pottery of the previous period continued in the earlier part of this period, but gradually disappeared. On the other hand, grey ware with black-painted designs became more common. Noteworthy amongst the designs are the pipal-leaf and humped bull with large dot-centered eyes and long horns in the Kulli style ✓ (fig. 4.6). The black-on-buff Quetta Ware with geometric designs too made its appearance, though in a limited way. Likewise, some of the potsherds are reminiscent of the Nal polychrome pottery, signifying contact with southern Baluchistan.

Like the pottery, terracotta figurines also witnessed a kind of proliferation. While these continue to be in the seated posture with outstretched joint legs thinning down almost to a point, there is a notable difference between these and those of Periods IV and V in so far as the upper part is concerned (pl. XXIIB). In the earlier examples the arms were absent, while they appear here. The breasts are somewhat more prominent with the upper part overlain with necklaces. But the most distinctive feature, however, is the hair-do (?). On each side of the head there is a large bun, rising much above the head and thereby, as it were, belittling it. Similar figurines occur in Central Asia (say in Namazga III), though there is one noteworthy difference, viz. whereas in the Namazga examples the sex organ is indicated by an incised or painted triangle, the Mehrgarh ones do not have the

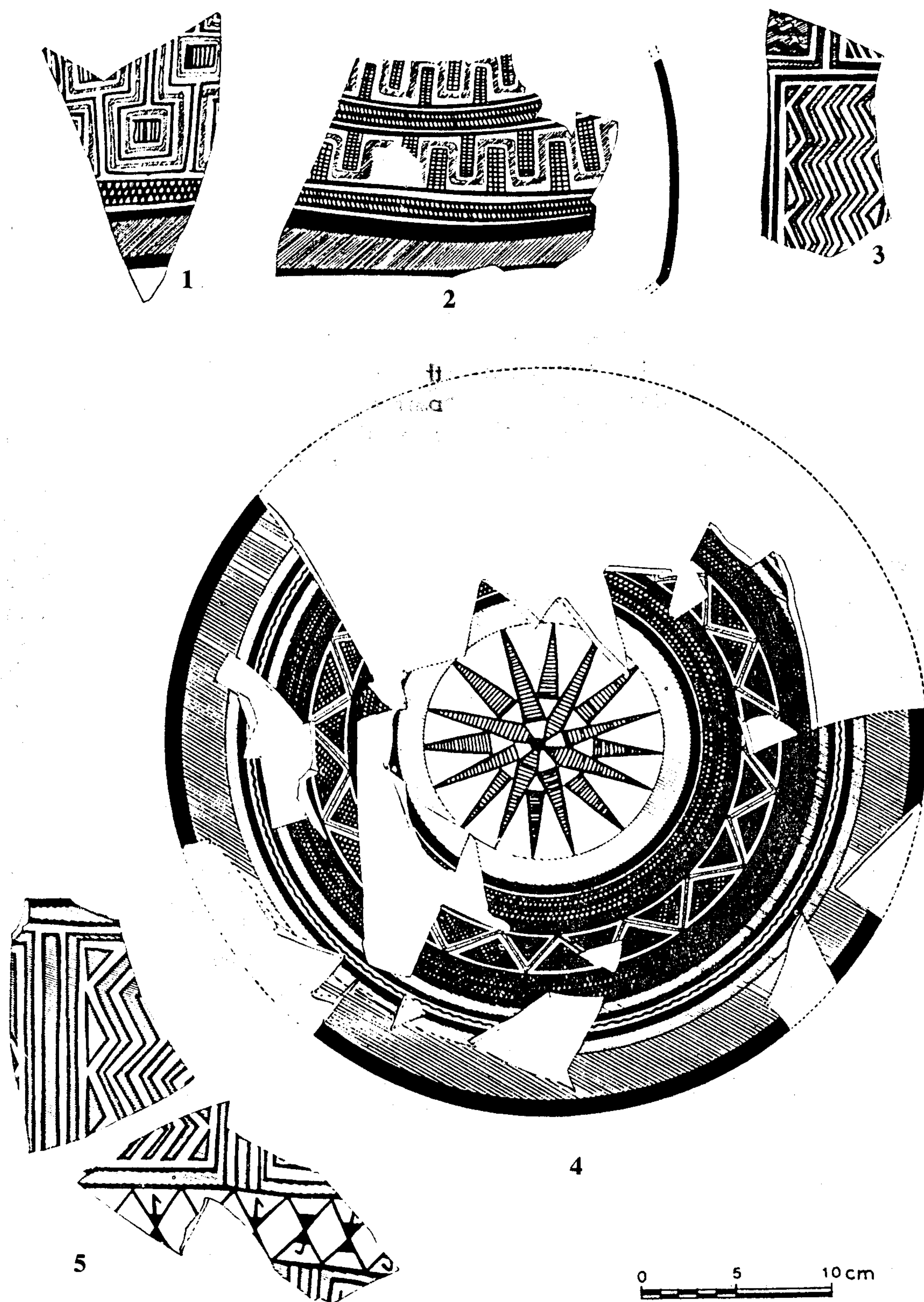


Fig. 4.5 Mehrgarh: Pottery, Period IV

same. Further, in the Mehrgarh examples the legs are sometimes tied with a coil of clay—a feature non-existing in the Central Asian examples.

Amongst the microlithic elements, noteworthy is the presence of leaf-shaped arrowheads of flint. On the metallic side, one may note a chisel, a flat axe and a double-spiral-headed pin. Compartmented seals, both in terracotta and stone, deserve special mention.

The only available radiocarbon date for Period VII is 1923 BC (Possehl 1990: 36), but on the basis of a comparison of the pottery, etc. from other sites such as Kot Diji, Amri (IIB), Mundigak (IV), etc., the excavator would like to assign the period to the middle of the third millennium BC. As in earlier periods, the pottery is both plain and painted. In the former were included such shapes as 'brandy' glasses, tulip-shaped goblets, plates and sturdy storage jars. The last-named, with their flattish base, tapering lower part, wide mouth and collared rim remind one of their counterparts in the Harappan pottery-repertoire. The 'Wet Ware', continued from Period IV, was decorated with rows of stamped circlets. In the painted pottery, two varieties deserve special mention. One of these was the black-painted grey ware, in which goblets with friezes of caprids with dotted eyes, long horns, elongated snouts and outstretched bodies, as if in a running posture (pl. XXIIIA), and dishes or shallow bowls with elongated fishes amidst seemingly aquatic plants are extremely pleasing (pl. XXIIIB). Often called the 'Faiz Mohammad Grey Ware', after the type-site of that name, specimens of this ware have been found from Sindh in the east, through central and northern Baluchistan to Afghanistan (Mundigak IV) and even Iran (Shahr-i-Sokhta II and III) in the northwest signifying, once again, an intercommunication. The other variety was that of a pinkish buff ware, represented by carinated bowls, tulip-shaped goblets and globular vessels painted with geometrical designs of the late Quetta style in plum or brown colour. However, most unusual was the occurrence of two chalices with concave profile ending up at the lower end in a carination and long pedestalled base. Of identical shapes, one of them had a black-burnished surface and the other red-burnished. These specimens were evidently intruders from northern Iran where they are more at home, for example in Hissar IIA and B.

Looking eastward to the Indus plains, one might refer to fragments of shallow dishes bearing on the interior fingernail designs, such as are found on the dishes or dishes-on-stand of the Harappan repertoire. In this context, one may add that the designs of pipal-leaf, fish-scale and intersecting circles, which constitute an important segment of the Harappan paintings, had begun to appear as early as Period VI.

Marks on pottery, incised before firing, were noticed for the first time in Period III. These continued through subsequent periods but became more prolific in Period VII. It is not unlikely that these marks on pottery may have had their own contribution, howsoever meagre, to make to the morphology of the Harappan signary.

Divisible into Subperiods A, B and C, Period VII far surpassed the preceding periods in the production of terracotta figurines. There was a modification in their style too. The goggle-eyed, beak-nosed figurines were no longer seated, but were in a standing posture (pls. XXIVA & B). In the female figurines, the hair was often painted with black pigment. A streak of red paint was also put in the medially located partition-line of the hair. While it is always risky to look at the past in the framework of the present practices, one might still pose a query. Does this kind of red filling in the medially partitioned hair of the females have any special significance? Has it anything to do with the age-old practice of Hindu women applying *sindūra* (vermilion) to

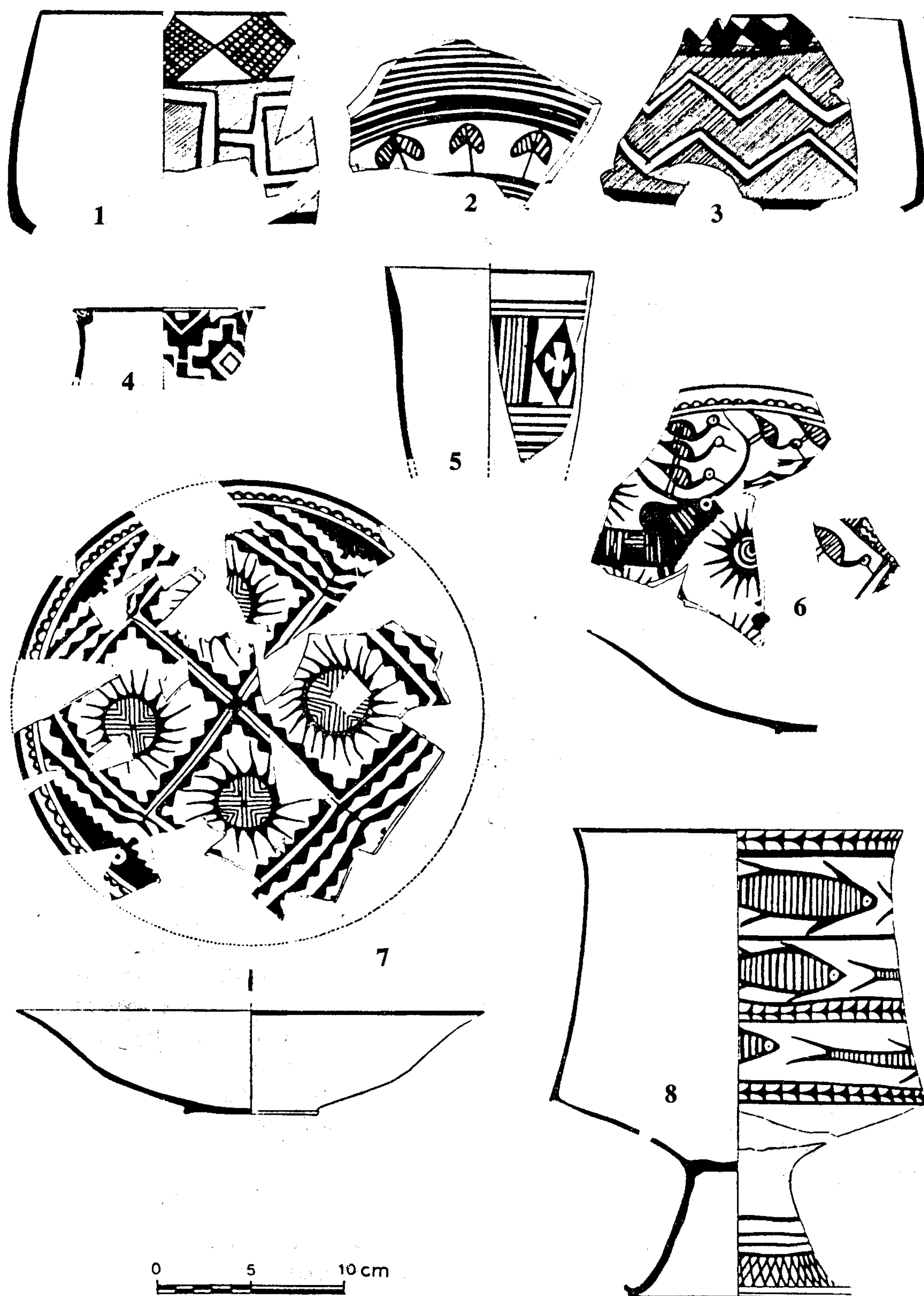


Fig. 4.6 Mehrgarh: Pottery; 1-3, Period V; rest, Period VI

their *māṅga* (medial line in the partitioned hair), denoting their marital status? However, it would be necessary to closely examine the actual specimens in order to come to any firm conclusion in the matter. Further, a case for the continuity of a tradition can be made out only if we have sufficient examples of intermediary periods, which are lacking at present. Necklaces hanging down to prominent breasts were sometimes painted in yellow colour (representing gold?). Indeed, the painting of terracotta figurines may be regarded as a novelty of the period.

The male figurines, with similar goggle-shaped eyes, pinched up nose and separated legs and hands, often bore a solid headgear, sometimes widening towards the upper end (pl. XXIVA), perhaps anticipating the more expanded 'fan-shaped' headgears of the Harappan terracottas. Such-like terracotta figurines have been designated in archaeological literature as belonging to the 'Zhob style', since it is in that valley that they were found to occur at a large number of sites.

When one tries to visualize the function of these terracotta figurines produced in hundreds (perhaps in thousands) one is completely at a loss. There is little contextual evidence to suggest anything categorically. Most of them have been found in rubbish dumps full of ash, pottery, etc. The usual appellation, viz. 'Mother Goddess', may find some support on account of the depiction of a child in the arms of a few examples. Alternatively, could these have been votive offerings, or just playthings for children? Quite unlike any other human terracottas, there are at least ten heads which deserve special attention. These have 'shaven' scalp, incised arched eyebrows, slit eyes and prominent nose.

Amongst terracotta animal figurines one notes the naturalistic depiction of the humped bull with prominent dewlap and the face reminiscent of the vigour of the Harappan counterparts. Also noteworthy was the figure of a ram in alabaster.

Of the other antiquities particular mention may be made of terracotta seals, often circular but sometimes squarish too. The designs on them included the swastika, cruciform motifs and what look like running animals. One of the seals was made in bitumen which is available not far from the site, in the Bolan Pass. Metal was not plentiful: only a few specimens comprising spiral-headed pins, axes, chisels and blades were found. Thus microliths were still in use and, besides blades, such types as lunates, triangles and trapezes persisted.

Of the structures of this period a very large mud-brick platform calls for special attention. Close to it there was a long wall with a series of square pilasters. Whatever may have been the precise use to which this platform was put, it does show a move towards monumentality in architecture — a feature so common in the Harappan context. As noted in the context of Period IV (above), the height of the doorway, as determined by the presence of the lintel, in one of the houses of this period was found to be once again 1.10 m. In a room of an adjacent house parallel batters with transverse beams stuck into the walls represented a sort of interflooring since hardly 60 cm below it were stored a large number of pots, big and small.

Elsewhere within the habitation area there lay, inside a clay box measuring 1.10 x 0.80 m, a flexed skeleton on its right side with the head towards the east. The person wore a necklace of kaolin, carnelian and lapis lazuli beads and wristlets of tiny white beads. A couple of plates constituted the pottery component. However, more unusual was the discovery of a large number of burials of children ranging in age up to five years. Each skeleton lay, again, in a clay box with an average size of 60 x 50 cm.

The last occupation (Period VIII) at the site is represented by some structures and

graves associated with a red ceramic industry, beads of semi-precious stones and bronze objects including a shaft-hole axe, the first occurrence of the type at this site. It has also yielded pedestalled bowls and truncated bowls or tumblers which are similar to those found in the uppermost levels of Nausharo, giving this complex a chronological horizon contemporary with late Harappan. There is, thus, a clear gap between Mehrgarh VII and VIII. In a wider context, some of the finds from Mehrgarh VIII are reminiscent of those from Iran (e.g. Hissar IIIC, Shahdad), Central Asia (Namazga V) or nearer home in Afghanistan (Dashly complex). This is once again a case of cultural interaction between regions geographically so close to one another.

Located at a distance of about 6 km south of Mehrgarh, Nausharo fills in certain gaps noticed at the former site. Excavations over here have revealed that the site was occupied for the first time around the end of Period VI at Mehrgarh, i.e. somewhere in the first quarter of the third millennium BC. The earliest occupation at Nausharo has been designated as Period I. A closer examination of its cultural equipment has led the excavator to divide it into four subperiods, viz. IA, IB, IC and ID. Of these, the former three can be equated with Subperiods VIIA, VIIB and VIIC of Mehrgarh. Of unusual interest was a grave in which a small child was buried below the floor of a house. It belonged to Subperiod IB. Terracotta figurines of this subperiod are also of interest. These are painted variously with red, yellow and black colours. The male figurines show the genitals. The pottery included, besides other types, what is known as the Faiz Mohammad Grey Ware which, it may be recalled, was also met with in Mehrgarh VIIB.

Of Subperiod IC, as many as five structural levels were identified. The houses consisted of courtyards, living rooms and those for storage. Also noteworthy was the presence of two mud-brick pillars in one of the rooms. Evidently these supported the roof. Another interesting feature was the provision of a staircase, which may suggest the existence of a second storey, though this is not proved. Remnants of mud plaster were found on some of the walls. Amongst the finds of this subperiod a 21-cm long spearhead and a bull-shaped seal, both of bronze, and an unfinished button-shaped seal in stone deserve special mention.

There are three radiocarbon dates which give an approximate idea of the chronological horizon of Subperiods IB and IC (Possehl 1990: 38). Of these, the one relating to Subperiod IB (BETA-18843) yields the calibrated date of 2598 BC. The other two, for Subperiod IC, are 2576/2531/2510 BC (BETA-18842) and 2569/2538/2503 BC (BETA-18844) respectively. The excavator is inclined to think that the dates are on the later side. In any case, they do show that these pre-Mature Harappan strata antedated the middle of the third millennium BC.

Subperiod ID is of special significance in the present context since it shows a transitional stage towards the Mature Harappan and occupies the same position in the cultural development as do, for example, Amri IIB or the transitional levels of Kot Diji. In this subperiod have been found many pottery shapes and painted designs which may have contributed variously to the ceramic repertoire of the subsequent Mature Harappan Civilization. For example, one might refer to a dish-on-stand decorated with a fish motif, a jar bearing the fish-scale design and a comb-like pattern in the Kot Dijian style, intersecting circles, humped bulls, pipal trees, etc.

Ascribable to this very subperiod were many large-sized mud-brick structures including platforms and a 7.75-m wide wall which was traced in many small trenches to a considerable length. In this context it may be mentioned that mud-brick platforms be-

come quite a characteristic feature of the monumental buildings of the Mature Harappan Culture. As regards the wall, it is somewhat difficult to be sure of its purpose, since it could not be exposed in its entirety. Maybe it was just a retaining wall. Or, did it form part of a system of fortification?

Period II has yielded typically Mature Harappan pottery, both in terms of shapes and painted designs. Some of the pots also bear characteristic signs of the Indus script. One must, however, refer here to an enigmatic phenomenon, viz. that practically all the structures of Period ID had been 'heavily burnt and the walls turned red due to heat' (Jarrige 1989: 64). In this context, it may be stated that the evidence of burning encountered at Kot Diji between the Kot Dijian and Harappan levels has been interpreted by many scholars as suggesting that the Harappans invaded and burnt down Kot Diji, before settling there. That this indeed may not be the only plausible explanation of the fire will be discussed later.

Before we turn our attention to the Indus valley and further east and southeast where remains of the Harappan Civilization are abundant and where immediately preceding cultures that may have contributed to the make-up of this great civilization are also buried, we may have a hurried look at what was happening in the hill-grit valleys of Baluchistan which, admittedly, did not offer the same opportunities for the explosion of a large-scale urban set-up as did the wide plains to the east, but were nonetheless seats of many noteworthy regional cultures.

In northern Baluchistan there are quite a few sites which call for attention. Some of these were explored and partly excavated way back by Aurel Stein and later revisited amongst others by Fairservis. Not much would be gained by blaming the indefatigable explorer, Stein, for his casual and unsystematic excavations for, after all, his work did bring a lot of valuable material to our notice. But surely what is needed is to re-excavate at least two of these sites, viz. Rana Ghundai (excavated by Brigadier E.J. Ross, another untrained excavator) and Dabarkot, as these are likely to throw up much valuable information on early developments in the region, maybe from the neolithic times to the Harappan.

Located in Loralai District, Rana Ghundai, as already mentioned, was excavated by Ross. His findings were later re-arranged by Stuart Piggott (1950) who classified the deposits into five periods, named I-V from bottom upwards. It may, however, be noted that the natural soil was not reached and thus the possibility of there having been some earlier stuff below Period I cannot altogether be ruled out. Period I itself was characterized by flint blades, points and eyed needles of bone and plain handmade ware. The animal bones recovered included those of the cattle (*Bos indicus*), sheep (*Ovis vignei*) and ass (*Equus assinus*). There were four teeth which Ross thought were of the true horse (*Equus caballus*), but Zeuner did not agree with this identification. Though the evidence is inconclusive, it is probable that this period represents a late neolithic stage when pottery had begun to be manufactured. The distinguishing feature of Period II was the appearance of a wheel-turned red ware, often slipped and painted in black pigment with characteristic motifs like humped bulls and black bucks (fig. 4.7). Mud walls with stone-foundation were also noted. Period III, a relatively longer one, is further subdivisible into a, b and c. In Subperiod IIIa there was the use of an additional colour, viz. red, and to the designs were added panelled squares and rectangles. In Subperiod IIIb, however, the brush-work of the paintings becomes somewhat coarser but a new pottery-type — a carafe-like vessel — is seen for the first time. In contrast to the foregoing subperiods, IIIc is marked by the appearance of quite a few new wares, e.g. Quetta Wet Ware, Faiz Mohammad Grey

ZHOB

KULLI

Fig. 4.7 Pottery and other artefacts of Zhob and Kulli Cultures

Ware, etc., signifying contacts with regions to the south. This subperiod saw an end very likely because of fire, since ash and charcoal were found over a wide area. The subsequent periods, IV and V, which came up after a break, are not of immediate interest to us. Two observations, however, need to be added. First, the site has not yielded any clearly identifiable remains of the Mature Harappa Culture. Secondly, some pottery-shapes recovered from the surface, combined with a few designs in which a white colour has been used in addition to the black, might suggest a Kot Dijian (pre-Mature Harappan) contact some time in Period III as a whole. In any case, it is clear that Rana Ghundai came under occupation long before the Mature Harappan Civilization.

Measuring over 150 x 135 m on plan and rising to a height of nearly 35 m above the surrounding plains of the Thal river, Dabar Kot is certainly one of the most impressive sites in Baluchistan. Discovered towards the end of the last century, partly excavated by Stein in 1927 and revisited by Fairservis a little over two decades later, it has yielded a lot of typically Mature Harappan material from the middle levels. In these levels were also found structures and drains of kiln-fired bricks and compartmented seals, besides goggle-eyed clay figurines, signifying an amalgamation of local cultures with the Harappan. A unique discovery was that of a male head in stone which, some think, may have Mesopotamian similarities. The still-unfathomed levels may well reveal pre-Mature Harappan and even earlier assemblages, an indication in which direction is given by the occurrence at this site of Rana Ghundai II-III type of pottery with black buck and chequer motifs.

About 15 km west of Kile Ghul Mohammad, discussed earlier, lies Damb Sadaat which carries forward the story of the former site (Fairservis 1956). Thus, the earliest levels of Damb Sadaat (Period I) yielded a variety of painted pottery, e.g. black and brown designs on buff surface, white designs on black surface, and polychrome designs involving simultaneous use of black, white and red — all going under the generic name of Kechi Beg Ware, derived from a site located on the Quetta-Sibi road. Such wares appeared at Kile Ghul Mohammad in Period IV and hence a continuity from that site. The houses were made of mud bricks on stone foundations. Stone and bone tools were still in use and though one would have expected copper objects, the same were not available, perhaps because of the limited dig.

The succeeding period, DS II, witnessed another kind of pottery, with plain or slipped buff surface painted over in black colour with floral, faunal and geometric motifs — known as the Quetta Ware. Also present were the Quetta Wet and Faiz Mohammad Grey Wares. The houses continued to be made of mud bricks on stone foundations. However, from the point of view of the finds, the period was pretty rich: copper objects inclusive of a dagger, alabaster vessels, a compartmented seal, clay and shell bangles, bone and ivory beads, human and animal figurines and, last but not least, house-models of clay painted in the Quetta Ware style.

Period III, a continuation from the preceding one, was marked by another kind of pottery, called for convenience, the Sadaat Ware. It is both plain and painted and has such shapes as beakers and biconical jars. Most of the antiquities found in Period II also continued, including such specialized ones as alabaster cups and compartmented seals. However, noteworthy amongst the structures unearthed was a monumental mud-brick platform associated with drains. Though no radiocarbon dates are available for the site, this last period may well belong to the middle of the third millennium BC, contemporary with the Mature Phase of the Harappan Civilization.

About 20 km northwest of Kalat is a mound near a village called Togau, which has yielded characteristic pottery that has been named after the site as the Togau Ware. It is a well fired red ware, often slipped. Sometimes it turned blackish under reducing conditions. The more noticeable types in this ware are: bowls with a variety of profiles including carinated ones, and globular jars. These were often provided with foot-rings. The sequence of designs, painted in black pigment, shows the following stages, beginning from the earliest. In Togau A there is a fairly naturalistic frieze of animals or birds, facing usually left, done in solid black. In the second stage, B, the body gets eliminated, but the neck, head and horns are identifiable. By stage C only the hooks of the horns remain, while in D the designs get further simplified as a sort of question mark. In this last stage the ware itself becomes darkish through reduced firing. The motifs, being quite distinctive, have been recognized in varying degrees at sites as far apart as Hissar and Sialk in Iran, Mundigak in Afghanistan and Amri on the Indus plains. This, again, points to a cultural intercourse amongst these areas.

A small mound called Anjira, located south of Surab and excavated by De Cardi (1965: 94-103), brought to light four periods of occupation. From bottom upwards, Period I was characterized by the occurrence of microlithic and bone tools, cattle and sheep bones, an occasionally burnished, fine, wheel-turned buff ware (sometimes with a red slip), and a few sherds of dark tan burnished ware. No structures were met with. Period II, however, was marked by structures of mud bricks on boulder foundations. In Period III roughly dressed stones were used for house-construction. It is during this period that contacts with other areas are noticeable, as evidenced by the occurrence of the Kechi Beg, Nal and Togau Wares. Also noteworthy was another kind of pottery — black-colour-coated buff ware, often cordoned, christened after this site as the Anjira Ware. In Period IV the masonry was somewhat better dressed, and a few rectangular narrow rooms, a stone-paved floor and a door-slab were recorded. Though not met with in the excavation, surface-collection included the Faiz Mohammad Grey Ware and Quetta Wet Ware, indicating sporadic occupation of the site even after Period IV.

Proceeding southward, there are three sites which need to be mentioned, viz. Nal, Kulli and Nindowari. Of these, Nal, located in Jhalawan District, was excavated systematically by Hargreaves in 1925, though trial-trenching had been done there some twenty years earlier. Six areas were opened up by Hargreaves, but only in some of these were habitational structures obtained. The others yielded burials, mostly in pots but a few separately in graves as well. These latter lay flexed in a mud-brick chamber. The pot-burials were fractional. The pots and some of the antiquities recovered from these burials as well as from the habitation area are noteworthy. The pottery is so distinctive that it has been christened as the Nal Ware. It is of fine fabric, wheel-turned and well fired. The body colour is either buff or red or even greenish grey. The designs were executed in a variety of colours such as black, blue, yellow and green, the outlines of the designs being usually in a kind of sepia. These included: geometrical motifs such as stepped, trapezoidal and zigzag panels; faunal motifs including ibex, gazelle, scorpion, fish, birds and humped bull; and some floral motifs. The total effect of these colours and designs is spectacular. The shapes included, amongst others, tapering, wide-mouthed bowls or straight-sided bowls, mostly with a ring-base, squat pots with bulged sides, canister-like vessels with a constricted mouth, etc.

The antiquities associated with the Nal complex included: long, narrow, crescent-edged axes and seals of copper; a finger-ring

of silver; querns, mullers, pounders, celts, etc. of stone; beads of agate, carnelian and lapis lazuli; bangles of shell; and terracotta figurines mostly of the humped bull but also one of the ram.

Further southwest, in the Kolwa region, lies the site of Kulli which was trial-trenched by Stein (1931). In one of the rooms in a structure, steps were met with, suggesting that there may have been an upper storey as well. According to one view, this may have been a temple-complex. Characteristic of the site were terracotta figurines: painted humped bulls and female figurines with beaked nose, applique eyes, arms placed akimbo, and finishing off below the hip. The pottery was plain as well as black-on-red, an elongated bull with large rounded eyes and long horns acquiring the type-name of 'Kulli style' (fig. 4.7).

Another site in the region, called Mehi, also dug by Stein (1931: 154-63), brought to light something unusual, viz. cremation burials, the bones lying generally in urns. The funerary assemblage included, besides pottery, bangles, hairpins and mirrors of copper, beads of semi-precious stones, terracotta female figurines, etc. In a separate area of the site residential structures were encountered, which on the basis of the associated pottery were coeval with the cemetery. Over here the terracotta figurines were found in a large number. However, no less noteworthy were the compartmented vases of steatite, bearing incised motifs on the exterior.

South of Kulli, Nindowari is yet another noteworthy site in the region. It was excavated by Casal (1966: 10-21) who discovered a large number of structures of stone. Some of these were very massive and monumental in character. It has been surmised that these might have had a ritualistic association. The site belongs essentially to the Kulli Culture, as signified by the occurrence of typical Kulli-style pottery and terracotta figurines. However, most important was the occurrence of two seals with typical characters in the Harappan script and the unicorn motif. It is thus clear that Nindowari, at one point of time, was contemporary with the Mature Phase of the Harappan Civilization and had trade contacts with it.

If we now try to recapitulate the overall picture in Baluchistan, we find that certain parts of it had come under human habitation as early as the pre-pottery neolithic times (the evidence from Kile Ghul Mohammad). In due course, pottery began to be used, first handmade and plain and later wheel-turned and painted. About this time, metal (copper) also came to be used. However, presumably because of the hills creating natural barriers, no single culture dominated the entire area. Instead, there were regional manifestations characterized by individualistic pottery and terracotta figurines — such as those of Zhob, Nal, Kulli, etc. None of these cultures appears to have given rise to the Harappan Civilization which, as would be seen in the following few pages, grew up essentially on the plains of the Indus and the Sarasvatī (Ghaggar). There, however, were doubtless contacts, both cultural and commercial, between the Baluchi cultures and those of the plains.

Before proceeding to discuss the sites located on or close to the Indus and its tributaries or further east on the Ghaggar and its affluents we may cast a look at certain sites which are located in a similar geographical setting as Mehrgarh and Nausharo. In the valley of the Gomal which, descending from the hills on the west, joins the Indus on the east, there are two sites, viz. Gumla and Rehman Dheri which have yielded a noteworthy culture-sequence.

Located at a distance of about 10 km from Dera Ismail Khan and excavated by A.H. Dani (1970-71), Gumla yielded the remains of six occupational periods of which the lower four are of immediate interest to us.

Period I (from bottom upwards) yielded a variety of microliths such as parallel-sided blades, burins, scrapers, awls, etc., besides heavier stone equipment in the form of saddle querns, mullers and pestles. No polished stone axes are, however, reported. Neither pottery nor metal nor even any structural remains were met with, but the presence of large pits with ash and charcoal has suggested to the excavator that these might have been community ovens. The absence of pottery but the presence of saddle querns and mullers generally thought to have been used for grinding cereals might suggest that Gumla I people were in a sort of aceramic neolithic stage. At the same time, it must be admitted that in the absence of actual remains of domesticated cereals any hypothesis about them can only be provisional.

Period II, however, heralded newcomers to the site. Not only did they use pottery but also copper/bronze of which an antimony rod was found. Wheel-turned, the pottery was both plain and painted. The former included cooking pots and storage jars, while the latter comprised bowls with ring-base, flat dishes, dishes-on-stand, troughs, etc. The painted designs, usually executed in deep chocolate colour over a buff or whitish background, comprised faunal and geometric motifs. The tool-repertoire included those in stone and bone. However, interesting was the occurrence of terracotta figurines both human and animal. The former included female figurines with a skilful modelling of the buttocks and paired legs. Amongst the animals both humped and humpless bulls were represented. The other terracotta objects comprised hubless wheels, triangle-sectioned bangles and gamesmen. The culture-complex of Gumla II would indicate that the newcomers may have been from northern Baluchistan or even further to west or north-west.

At the end of Period II the site seems to have been abandoned for some time, as indicated by a sterile layer between it and Period III. These new settlers arrived with a cultural equipment which was substantially different from that of the preceding period. For the first time mud-brick structures were encountered; and interestingly the size of the bricks was 28 x 13 x 7 cm, showing an approximate ratio of 4:2:1 — distinctive of the subsequent Harappan Culture. Because of the vertical nature of the trench, no detailed house-plans were obtained but in many cases it was noted that the walls ran north-south and east-west, showing a sense of orientation along the cardinal directions. In so far as the pottery is concerned, black-on-red became dominant, though the chocolate-on-white (or buff) lingered on, suggesting that the earlier people had not completely disappeared but seem to have rejoined the newcomers. A characteristic feature of the pottery of this period was the painting of thick bands along the rim and neck. Another noteworthy motif was a 'horned deity'. Both these go well with what has come to be known as the Kot Dijian pottery, which we shall discuss in some detail later. Of the pottery-shapes too some are noteworthy, particularly vessels with a flange below the rim and dishes-on-stand.

The terracotta female figurines have broad hips merging into an undifferentiated short and flat leg-block, extending at right angles to the former. The upper part is reasonably modelled, having curved-in arms resting at the hips, a pinched up face and long hair coming down to the shoulders. The other finds from this period include two antimony rods and a nail-parer of copper/bronze, a variety of terracotta bangles sometimes decorated with incised zigzag designs. Specific mention must also be made of conch bangles which would indicate contact with sea-sites, maybe through intermediaries.

A layer containing ash, charcoal, potsherds, etc., running all along the excavated

trench, intervened between Periods III and IV, the latter of which contained many duly identifiable Harappan elements, such as perforated vessels, triangular cakes, toy-carts, solid wheels — all of terracotta, cubical weights, etched beads of carnelian and disc-shaped beads of paste. Amongst the structures there was a large podium of mud-bricks reminding us of the podia encountered at many of the Mature Harappan sites. At the same time, many elements of the preceding period also continued, indicating a clear co-existence of the two trends. Thus, one wonders as to what the intervening ash layer signifies. In this context, one is compelled to recall similar evidence of burning at Nausharo, Rana Ghundai and Kot Diji.

Unfortunately there are no radiocarbon dates for Periods I and II. There are, however, two dates for Period III, viz. 2883/2796/2784 and 2850/2845/2647/2612 BC (Possehl 1990: 17), which assign to it a horizon between ca. 2900 and 2600 BC. This is quite in keeping with Mature Harappan presence in the succeeding Period IV. Also noteworthy is the presence of the Kot Dijian element as far north as Gumla and that too in a proper pre-Mature Harappan context.

Period V, represented by graves containing cremated human and animal bones (including those of the horse), followed Period IV. A layer of burnt earth, ash, etc. caps Period IV and the excavator thinks that it is the grave-people who destroyed the Harappan settlement. The graves were in the form of a circular pit in which first the sacrificed animals and above them the human body were placed. Dani states, 'The whole (interment) was sealed by clay. It seems that fire was lighted later after the sealing of the grave and it was never opened. As such, we may take the grave as a burial as well as a funeral pyre' (1970-71: 52). Amongst the antiquities recovered from the graves mention must be made of a model of a saddled horse. Who these horse-using, cremated/buried people were it can only be guessed. Strangely, however, a sample of charcoal recovered from one of the graves has given a radiocarbon date of 2922 BC (Possehl 1990: 17), which evidently does not fit into a post-Harappan context.

Period VI, according to the excavator, is represented by graves with flexed burials associated with iron. The evidence, however, is confined to the surface of the mound.

About 23 km north of Dera Ismail Khan, Rehman Dheri covers an area of about 540 x 390 m and rises to a height of about 6 m above the surrounding plains. Though now the Indus is far away from the site, it seems to have been much nearer, around 5 km, in ancient times, as indicated by an abandoned ancient bank of the river. Excavations carried out by F.A. Durrani (1981a, 1981b, 1988; and Durrani *et al.* 1991) revealed three periods of occupation, named I, II and III from bottom upwards.

Though some of the pottery of Rehman Dheri I matched with that of Kot Diji, it represented predominantly a local tradition which included ring-based bowls and cups of fine red ware (fig. 4.8). The designs painted in black or chocolate colour included lozenges, stepped motifs, triangles, fish, etc. What is more interesting is that the body of the fish was filled with white paint (pl. IVA). Likewise, both black and white colours were used in depicting a horned deity, also seen at Gumla. The other designs included mountain goats, bulls and scorpions. On the bases of the pots in certain cases there occur graffiti which may have been potters' marks, but interestingly are akin to the signs in the Harappan script.

A very noteworthy find from Period I was a roughly squarish (3 x 2.7 cm) ivory seal, with two holes along one edge evidently for suspension. On one of its sides have been

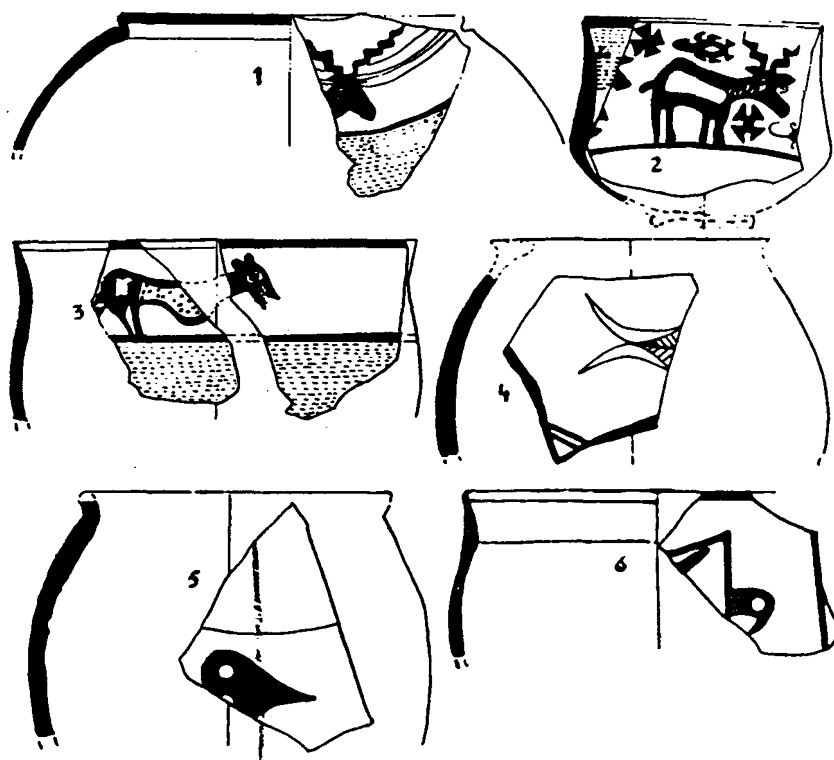


Fig. 4.8 Rehman Dheri: Pottery, Period I

engraved two mountain goats, along with three symbols, one T-like, another I-like and the third resembling an arrow. The other side shows two scorpions, a frog and, again a T-like symbol (fig. 4.9). There are four radiocarbon dates for Period I, viz. 3331/3226/3185/3155/3143 BC, 3034 BC, 2915 BC and 2877/2800/2780/2712/2708 BC. These indicate that the use of seals (evidently for sealing commodities) may have started, around 3000 BC, if not earlier. Similar evidence is there from Mehrgarh Period IV.

From Period II of Rehman Dheri came typical Kot Dijian pottery. The painted designs on it included the peacock, pipal-leaf, intersecting circles, fish-scales — all of which are amongst the characteristic motifs on the Indus pottery. On a typically Kot Dijian grooved pot there also occurred knobs on the exterior (fig. 4.10), a feature which continued in Period III and is available on some of the pots at Harappa as well as Mohenjo-daro. The material from Period III gets closer to the typical Harappan. There were beads of carnelian, lapis lazuli, turquoise, etc., along with the raw material and waste flakes, indicating local manufacturing of beads. Interesting was the discovery of a microlithic drill still inside a long tubular bead of carnelian.

In the southwestern part of the mound, a wall made of mud blocks was traced up to a length of 19 m. Maybe it was a fortification wall. Likewise, a wide street was found dividing the site into a northern and a southern block. However, the excavator does not clearly bring out the exact period of these

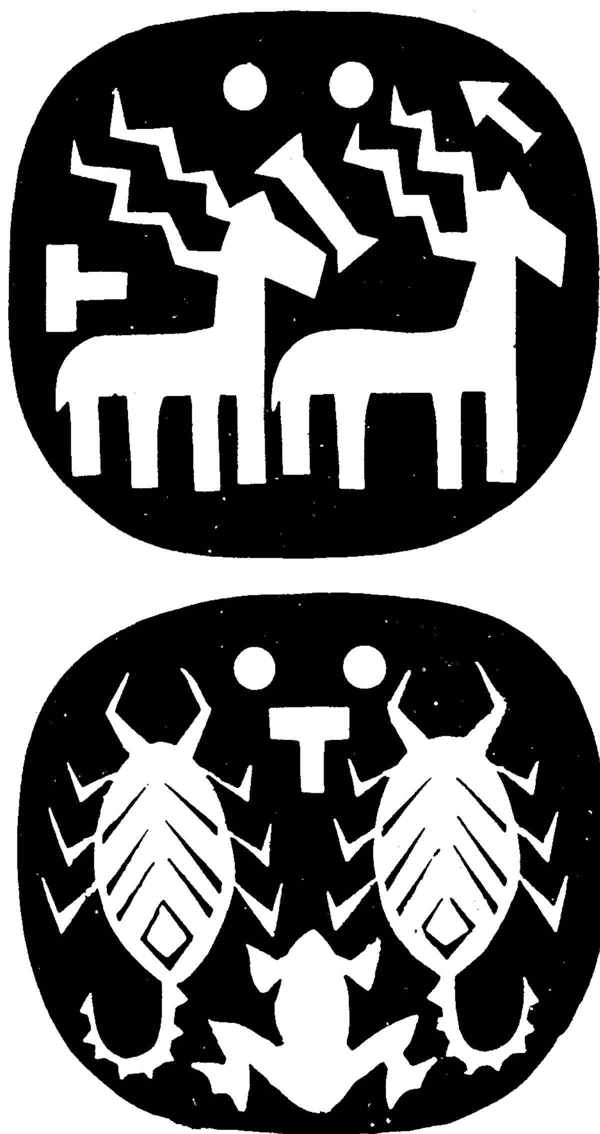


Fig. 4.9 Rehman Dheri: Motifs on an ivory seal, Period I

features. In any case, it is interesting to note a system of town-planning and fortification (if it is finally proved to be so) in an area far removed from the main hub of the Mature Harappan Civilization and in a period preceding it.

The uppermost levels of Rehman Dheri (Period III) have yielded more evolved Kot Dijian pottery showing further elements of the would-be Mature Harappan complex. In this context one may refer to the nearby site of Hissam Dheri from the surface of which a good amount of Mature Harappan material has indeed been picked up.

Further north, in the Bannu basin, lie three sites, viz. Tarakai Qila, Lewan and Sheri Khan Tarakai (Allchin and Knox 1981a and 1981b; Khan, Farid *et al.* 1986). At the first-named site, measuring about 300 x 400 m on plan and rising to a height of about 20 m above the ancient river-bed, as many as ten building phases were observed. The structures were made of either boulder foundation with mud bricks or entirely of mud slabs without any boulder foundation. At the edge of the mound was encountered a massive mud-brick wall, repaired or rebuilt over and over again, as necessary. The implications of this wall and of a platform in the habitation itself can be fully understood only if further excavations are carried at the site. However, what is interesting is that, according to the excavators, the entire occupation belonged to the Kot Dijian complex. Amongst the finds from the site, particular mention may be made of steatite seals, three of which came from a considerable depth, One of the earlier seals measures 17 x 16 mm and has four concentric circles; another is lozenge-shaped, 12 x 12 mm, with a design of cross-hatchings; while the third, cross-shaped on plan, also has concentric circles. A seal, found in the upper levels, seems to have had a design of antelopes. It is broken, but was circular on plan with a diameter of 30 mm. None of these seals had any symbols which did occur on the Rehman Dheri example. Anyway, the important point is that the use of seals is attested to not only at Rehman Dheri but also at Tarakai Qila, at both places in a Kot Dijian context. The radiocarbon dates, however, are not all that early. These are: 2587, 2283, 2198/2151/2149, 2123/2080/2042, 2032 and 1880/1830/1829 BC. If the radiocarbon dates are strictly to be believed, it may mean that the

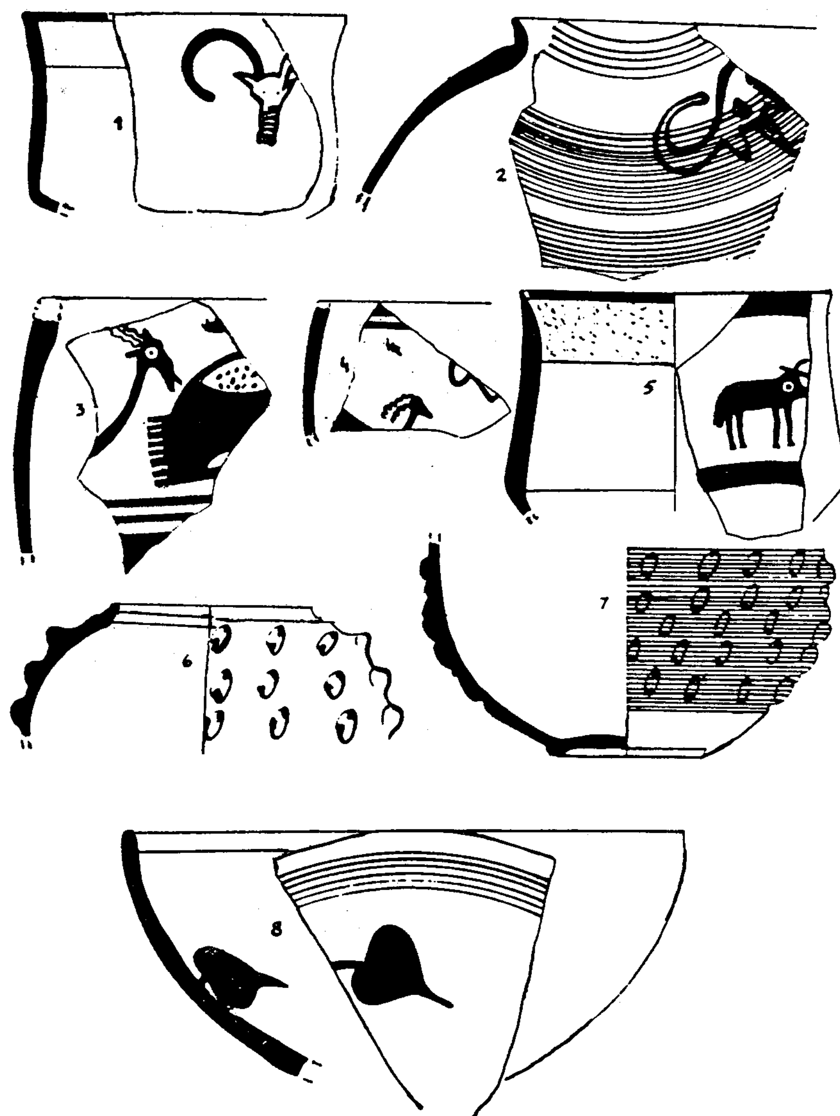


Fig. 4.10 Rehman Dheri: Pottery from Periods II and III

Kot Dijian Culture survived pretty late in this far off secluded area in the northwest.

Though also ascribable to the Kot Dijian period on the basis of the pottery, Lewan has not much to offer by way of structures. Several shallow pits, lenticular on plan, contained microliths, pottery, ash, etc. These may represent temporary residences the like of which with brush-wood walls are still found in the area. The finds comprised clay figurines and pottery. The latter included a pleasing example of a wide-mouthed bowl with a tapering profile, sitting on a hollow pedestalled base. On its interior is a fish-frieze, the style being similar to that from Rehman Dheri. Also noteworthy is the 'horned deity' motif,

again reminiscent of a similar motif in the Kot Dijian context.

Sheri Khan Tarakai, with a 2-m thick deposit, has yielded the remains of a late neolithic complex in the lowest levels. On the basis of radiocarbon dates this complex is ascribable to around 4500 BC. The occupation, however, continued into the Kot Dijian times.

For long periods excavations were carried out by Sir John Marshall at Taxila. His earliest site, Bhir Mound, went back to ca. 600 BC. But little did he know that hardly 2.5 km from it lay a site which could take history back into prehistory. The site, known as Sarai Khola, has a reasonably impressive mound, approximately 600 x 300 m on plan and containing about 6 m of occupational deposits. Four cultural periods, numbered I-IV from bottom upwards, have been identified by the excavator, Muhammad Abdul Halim (1970-71 and 1972). The tool-assemblage of Period I comprised polished stone axes, chert and flint blades and other microliths and bone points. The pottery, made from thick- to medium-grained clay, had a burnished brown surface. The types included pans and bowls, the latter having mat-impression at the base. All this is reminiscent of the neolithic culture of Burzahom which, as the radiocarbon dates for the two sites indicate, was by and large contemporary. The radiocarbon dates for Period I at Sarai Khola are: 3028/2985/2930, 2917, 2897 and 2865/2810/2747/2725/2697/2674/2668 BC.

Without any break in occupation, Period II is marked by the appearance of a new set of people. Thus, while the polished stone axes, microliths and burnished brown ware of the previous period continued to coexist, the newcomers brought in what has come to be known as the Kot Dijian Ware. The lower levels of Period II, where the Kot Dijian Ware made its first appearance, have sometimes been called 'Transitional IA'. Also, the brown burnished pottery, typical of Period I, begins to diminish after IA. Amongst the principal shapes of Period II were : globular vases with short rims, having horizontal grooves on the exterior as well as bands along the neck in black, red and sepia colours; ellipsoid jars with prominent flange on the exterior at a level slightly below the neck to hold a lid, dishes-on-stand and flat dishes. Amongst the painted designs may be noted, besides thick or thin bands along the neck, concentric semicircles on the upper part of the pots, loops, arrows, dot-ended radial lines, pipal-leaves, etc. Often the space within a painted outline was filled in with white colour, for example in the case of four-petalled flowers, etc. There are, however, some designs which show a Baluchi trend as well.

The notable antiquities of this period comprised human and animal terracotta figurines, toy-carts and wheels, beads variously of lapis lazuli, agate and carnelian and bangles including those of faience. The terracotta seated female figurines, with their legs conjoined and thrown forward, broad hips but thin waist, and prominent breasts, are reminiscent of those found at Gumla and Rehman Dheri in a similar chronological horizon. Further, whereas no copper object was found in the preceding period, Period II yielded over a dozen copper/bronze objects comprising spearheads, needles, nail-parers, antimony rods with rolled ends, pins, rings and bangles. There are five radiocarbon dates for this period, viz. 2580, 2459, 2455/2416/2405, 2283, and 2273/2245/2204 BC.

It needs to be added that the Mature Harappan did not reach the site.

After a break, the site was reoccupied by people who used iron (Period III) and buried their dead in an east-west orientation. The latest occupation, again with a break, seems to belong to the medieval times. Although a typical Kot Dijian pot bearing the 'horned deity' motif has been found at Burzahom, a regular infiltration of the Kot Diji Culture into

the Kashmir valley does not seem to have taken place. Thus, in the present state of our knowledge, Sarai Khola may be treated amongst the northern most settlements of this culture. Here perhaps a passing reference may be made to Jhang, a site not far from Sarai Khola, where too Kot Diji-associated remains have been found.

Leaving the peripheral submontane regions, we may now descend on the plains of the Indus and its tributaries. Travelling due south from Sarai Khola, we notice no protohistoric site of any importance on the banks of the Chenab. Thus, we are at Harappa, located on the southern bank of the Ravi.

M.S. Vats' excavations at Harappa had brought to light not only extensive remains of the great civilization named after this very site but also some of a subsequent culture, called Cemetery H Culture, represented mostly by burials and a few impoverished structures (Vats 1940). In 1946 Wheeler did further work at the site and found, below the Harappan mud-brick fortification wall around Mound AB, some potsherds which, because of their stratigraphic position clearly preceded the Harappa Culture (Wheeler 1947). With a view to ascertaining the nature of the settlement associated with the pre-defence pottery and to sorting out its relationship with the Harappa Culture itself, Dales, Kenoyer and Meadow resumed further excavation at the site in 1986 (Kenoyer 1991).

Vats had named the different parts of the site as: Mound F, on the northern extreme, hugging the ancient bank of the Ravi; Mound AB, the Citadel mound south of Mound F; Mound E, to the southeast of Mound AB, and so on. Here we are concerned primarily with the work of Dales and his colleagues on Mound E, since it has thrown valuable light on the culture-complex the hints of which were already available in the form of the pottery that preceded the defences.

Three areas, respectively in the northwestern corner and along the western and southern edges of Mound E, were taken up for excavation. The excavators also probed the deeper levels at the southwest corner of Mound AB, but no regular settlement of the pre-defence people turned up there. In the northwest corner of Mound E, however, remains of the pre-Mature Harappans were duly encountered, and so were in the western and southern parts. This clearly demonstrates that the earliest settlement at Harappa began in the area now designated as Mound E and it was only later that new grounds were broken towards the west and north, i.e. in the areas now called AB and F.[1]

On the basis of the available data, the excavators have divided the occupational strata in Mound E into five periods. From bottom upwards these are: Period I, Kot Diji-related, pre-Mature Harappan (also called Early Harappan); Period II, transitional; Period III, Mature Harappan; Period IV, again transitional; and Period V, Cemetery H-related.

Occupational strata ascribable to Period I were located in the northwestern corner as well as on the southern slope of Mound E. These were characterized by Kot Dijian pottery, mud-brick structures, hearths and some terracotta figurines. The pottery includes globular jars with slightly everted rim, vessels with a flange below the rim to hold the lid, wide open bowls with convex sides, small goblets with concavo-convex profile and disc- or ring-base. The designs, usually painted in black, are not prolific but characteristic, e.g.

[1] Just when this book was about to be printed off we learnt from Dr. Mark Kenoyer that the lowest levels at the northern end of Mound AB have yielded evidence of a settlement even earlier than that encountered in Mound E. Indeed, no statement in archaeology can be final!

thick bands along the rim and thinner ones further down the profile, wavy lines, vertical rows of conjoined loops, etc. There is also evidence of additional use of white colour. In a few cases, grooves along the exterior profile are also present.

The structures were made of mud bricks (size 40 x 20 x 10 cm — a typical Mature Harappan ratio of 4:2:1) and oriented along the cardinal directions. In the southern part of the mound there is the indication of a street that continued into the Mature Harappan times (Period III). Interesting also was the discovery of a cart-track in this street right on the natural soil. Such tracks in the same street were also noted in Period III. Associated with the structures of Period I there were hearths as well. A few fragmentary terracotta figurines were also found, one of which is in a seated posture with conjoined tapering legs.

Period II has been distinguished from Period I because of a major structural event, viz. the construction of a peripheral wall in the northwestern part of Mound E. Oriented at an angle of 10 degrees west of true north (for all practical purposes a north-south orientation), it has been traced to a length of about 15 m along tne western edge. Though it was duly identified at the northwest corner, its eastward extension was untraceable because of subsequent disturbances in the area. Made of mud bricks measuring 40 x 20 x10 cm, the wall had a width of 2 m and was available to a height of a little over 2 m. Whether it was a mere retaining wall or was meant to function as a fortification cannot be said with certainty unless further work is done to pursue the wall. In this context, however, it may be mentioned that at least at two sites, viz. Kot Diji and Kalibangan, there is definite evidence of fortifications prior to the Mature Harappan Period. While the pottery and other objects of Period I continued into Period II, a noteworthy addition was that of terracotta cakes which, as we know, became a distinctive trait of the Mature Harappan complex.

There seems to be no break of occupation between Periods II and III, since in the northwestern part of Mound E the general plan of the massive wall of Period II was followed in Period III as well. And so was the case with the street in the southern part of the mound. However, one major difference there was, viz. the use of kiln-fired bricks which became the hallmark of the Mature Harappan Civilization through all its levels. In the southern part of the mound, a peripheral mud-brick wall with a revetment of kiln-fired bricks was also recorded for a considerable length. Further, a gap was also noticed in this wall, which may have functioned as a passageway. More or less opposite to it, in the interior of the mound there was a 5-m wide street flanked by regularly planned houses on both sides. In one of the houses many seals and sealings were also obtained. The pottery and other artefacts of Period III were all typically Mature Harappan and need not be repeated here. Period IV, according to the excavator, was a sort of transitional stage towards Period V which related to what is known as the Cemetery H Culture.

Radiocarbon dates, as is well known, are notorious for being helpful on the one hand and producing confusion on the other in ascertaining the absolute chronological horizons of the cultures concerned. There is only one date for Period I, viz. 3338/3213/3203 BC (BETA-33873). For Period II there are four dates, which happily are consistent: 2470, 2468, 2462 and 2455/2416/2405 BC. There are twentyfive dates for Period III, of which at least three, viz. 3338/3213/3203 BC (BETA-33874), 2913 BC (WIS-2140) and 2863/2812/2742/2726/2696/2677/2666 BC (WIS-2142), are far too early. In fact, the first-named is identical with the one from Period I. However, the remaining dates, ranging between 2573/2535/2506 (WIS-2145) and 2133/2067/2047

BC (WIS-2074) make good sense. Now, while it is easy to reconcile the dates for the Mature Harappan Period, viz. III, and those for the transitional Period II, one is indeed confounded by the date 3338/3213/3203 for Period I. If this date is to be accepted, there would be a gap of more than 700 years between Periods I and II. Where then is the case for transition? If the stratigraphical observations between Periods I, II and III are correct and if stratigraphy does show continuity from I to II and again from II to III, then we will have to rethink about the date provided by the radiocarbon sample from the earliest period. Clearly, more samples from this period need to be dated to arrive at an acceptable horizon for it.

Situated some 75 km downstream from Harappa on the Ravi river, Jalilpur is yet another site which gives us an insight into this pre-Mature Harappan Culture complex. Indeed, like Sarai Khola, Jalilpur has no Mature Harappan occupation and thus offers an opportunity for the study of this preceding culture in its pristine form.

Mughal's excavation at Jalilpur (Mughal 1972 and 1974) brought to light two periods of occupation without any break in between, accounting for a total deposit of about 2 m. Period I was noted for a handmade thick ware, rather underfired and thus having a light red colour. Its characteristic feature, however, was an additional coating, on the exterior, of mud intermixed with small bits of pottery. One finds similar pottery in the lowest (neolithic) levels at Sarai Khola, as also in the lowest levels (IA) of Amri. There were also large jars and small bowls in a plain red ware. However, in the upper levels of Period I itself there appeared a wheel-made, well-fired red ware painted over with designs in black and brown or chocolate pigment, which became dominant by Period II. In this latter period the mud-and-pottery-coated ware gradually got reduced in quantity. The finds from Period I included chert blades, bone points and beads, including one of gold. Although no structures as such were encountered in the limited dig, yet floors made of rammed earth and lime were duly noted. The wheel-made painted pottery, as already stated, became more dominant in Period II. Amongst the shapes and decorations, the following deserve special mention, since these provide parallels with other pre-Mature Harappan sites and some of these continue into the Mature Harappan times as well: vessels with a flange below the rim to hold a lid, and painted with linear and geometric designs in black over a red surface; globular pots with short rims, having a multi-grooved exterior and painted mostly with thick horizontal bands along the rim and neck and with thinner bands down the body; bowls and other vessels painted over with designs which have a black outline filled in with white; vessels with wavy or horizontal multi-linear or curvilinear designs in relief obtained by a sort of combing technique when the pot was wet; offering stands painted in black on red surface. The other finds included: 'cakes', toy-carts, wheels, humped bull figurines, joint-legged seated female figurines, bangles with a variety of cross-sections — all of terracotta; chert blades and cores; saddle querns and mullers of stone; beads of carnelian, lapis lazuli; bangles of faience, etc. The structures in this period were made of either mud lumps or mud bricks. Though the size in the latter was 45 x 22.5 x 7.5 cm, i.e. in the ratio of 6:3:1 and not 4:2:1, as at many other pre-Mature Harappan sites, yet a sense of proportion is clearly in evidence.

Moving down the Indus into Sindh, one comes to two very important sites, viz. Mohenjo-daro and Kot Diji. The former is known for its monumental remains of the Mature Harappan Civilization. However, over here the natural soil was never reached in spite of various attempts, by Wheeler in 1950 and Dales in 1964. The water-table,

which has considerably risen since the lifetime of the site has posed a very serious challenge. Wheeler was able to penetrate only 5 m below the water-level, while Dales' boring carried him down to a depth of about 10 m below the ground-level that surrounds the base of the mound. The mound itself rises to a height of 10 m above the base. Thus, if the material met with in the boring represents regular occupational strata, the total occupational thickness would be over 20 m. While the already excavated remains represent, from top downwards, Late and Mature stages of the Harappan Civilization, there are inklings that the lowermost and yet-unfathomed levels may represent a pre-Mature Harappan settlement. Such a supposition arises out of the occurrence in the lower levels, amongst other things, of the 'Wet Ware' which is similar to that found at Jalilpur. We can only hope that some day with a stroke of good luck and refined technology we may be able to get an adequate picture of the earliest strata.

Located in an easterly direction from Mohenjo-daro, on the opposite side of the Indus (but away from its bank), Kot Diji was excavated by F.A. Khan (1965: 11-85), which brought to light two periods of occupation. In terms of a well-defined section of the site, the earlier period, I, represented by layers 16 to 4, revealed extensive remains of what has come to be known from this site as the Kot Dijian Culture. Layer 3A, overlying 4, yielded a mixed deposit of Kot Dijian as well as Mature Harappan Cultures, while layer 3 and various subdivisions of 2 and 1 represented the Mature Harappan Culture. In terms of the thickness of the deposits, the Kot Dijian Culture accounted for about 5 m, the Mature Harappan for 4.5 m and the intermediary layer 3A for about 45 cm.

As might be expected, the 5-m thick occupation of the Kot Dijian Culture shows within itself a kind of evolution. For example, in the lower levels the painted designs were less prolific, generally limited to simple horizontal bands, wavy lines and loops. In the upper levels these became more elaborate. Thus the loops gave rise to the fish-scale pattern (fig. 4.11), which continued into the Mature Harappan Period as well. Designs closely allied to the 'intersecting circles' concept also came into being. Here mention may also be made of the 'horned deity' (fig. 4.11) which has a wide spatial distribution during the Kot Dijian times. It may have given rise to some of the horned deities noticed during the Mature Harappan period. Further, the use of an additional white colour was also taken recourse to, which seems to be a distinctive feature of the pottery of the pre-Mature Harappan times almost throughout the Indus and Ghaggar valleys.

Though globular vases with short everted rim were the most distinctive type of the Kot Dijian levels, there were quite a few other types which continued into, or gave rise to those in, the Mature Harappan Culture. For example, there were: vessels with a flange below the neck to hold a lid; dishes-on-stand (though these had a somewhat shorter stem than in the Harappan times); and cylindrical beakers. However, it needs to be stated that the Kot Dijian pottery, by and large, is thin and delicate as compared to the Mature Harappan which is thick and sturdy. In terms of distinctive absentees from the Kot Dijian pottery one notices the S-shaped jars and tall cylindrical vessels with perforated profile.

Amongst the other finds recovered from the Kot Dijian levels mention ought to be made of long blades of chert, sometimes notched and serrated, leaf-shaped arrowheads, stone mullers, pestles, and terracotta 'cakes', the last-named showing a link with the Mature Harappan repertoire. Surprisingly, terracotta figurines of humans were conspicuous by their absence and only one terracotta bull was found. This, however, has a forceful face

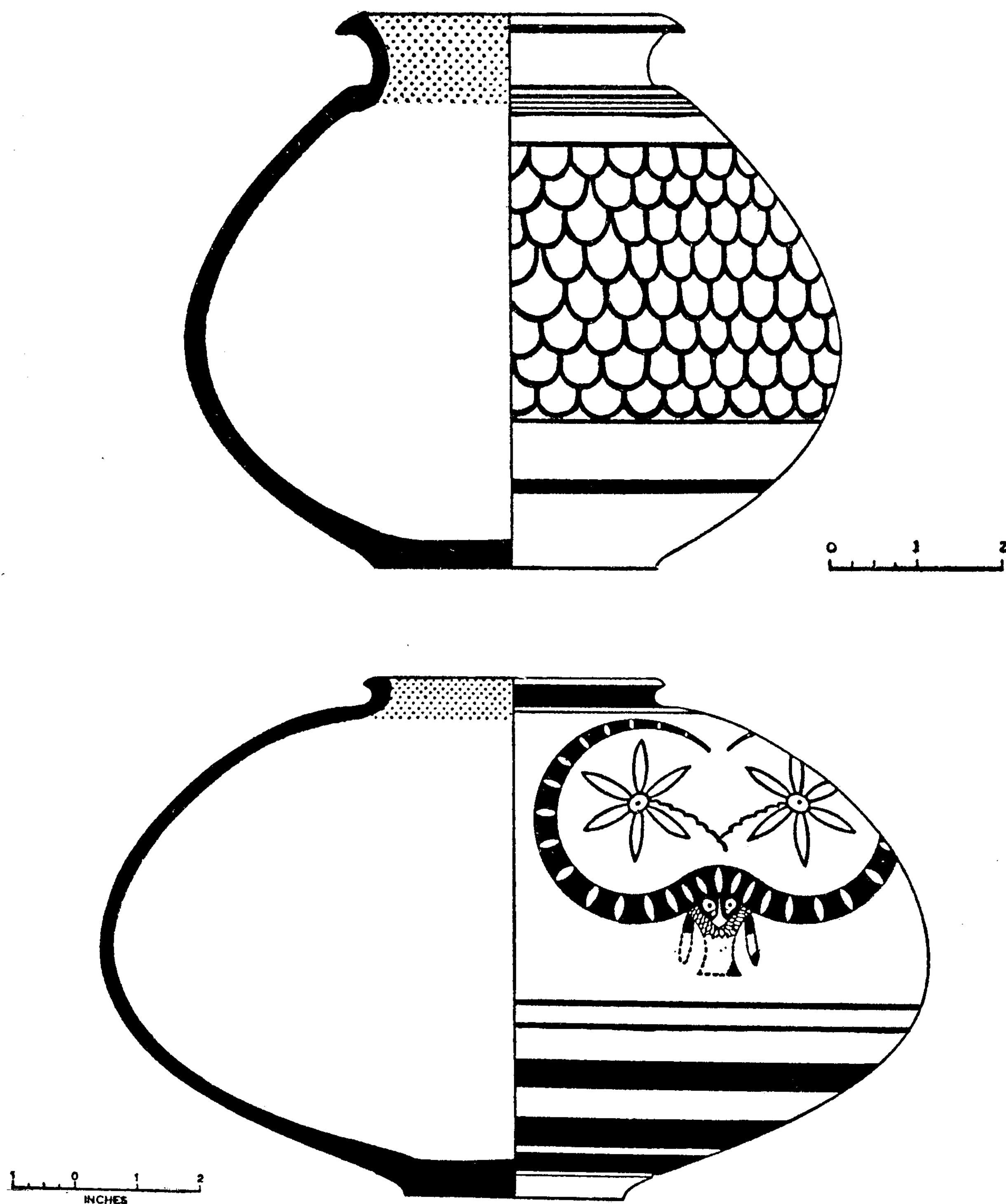


Fig. 4.11 Kot Dijian vessels

with large eyes. Metal is represented by a fragmentary bronze bangle.

The Kot Dijian houses were made of mud pises or mud bricks, often set on stone foundation. In this context, however, it needs to be emphasized that the size of the bricks, viz. 38 x 19 x 9 cm, shows approximately the same ratio of 4:2:1 which became the characteristic feature of the Harappan bricks. Unfortunately, because of the limited dig in the lower levels, not much of the layout of the habitation could be exposed. At the same time, it was noted that the house-walls were oriented along the cardinal directions and in some cases were as much as 1.5 m in width. However, most significant is the fact that the Kot Dijians did have a fortification-wall around their settlement, which at places is extant to a height of about 4.5 m. Founded on the bedrock, its lower portion was made of undressed stone blocks while the upper was that of mud bricks. On the exterior there was a mud-brick revetment; also there were bastions at intervals. The inner face had a slant of 8.5 degrees and was further reinforced at intervals with a stone revetment bonded with the stone courses at the bottom. As we shall see later, besides Kot Diji, Kalibangan is yet another pre-Mature Harappan site which was duly fortified. The concept of fortifying settlements and maintaining the fortifications as well as the layout of the township inside would imply that there was a viable administration whose exact nature, however, we do not yet know.

Four radiocarbon dates are available for Period I at Kot Diji. These are: 3070/3040, 2870/2806/2774/2720/2702, 2851/2830/2653 and 2463 BC. In this context, it may be added that below the layer which gave the first-mentioned date there were two more layers, accounting for a further deposit of 60-70 cm. Thus, the beginning of the Kot Diji settlement may reasonably be placed around 3000 BC or somewhat earlier. The last-named date relates to the uppermost layer, viz. 4, and would suggest that the Kot Dijian settlement continued up to around the middle of the third millennium BC.

The Kot Dijian occupation was capped by a layer containing ash, charcoal, burnt earth, etc. While it is difficult to say anything about its cause, it may be recalled that a similar situation occurred between the Kot Diji-related and Mature Harappan strata at Gumla, labelled respectively Gumla III and IV. Overlying the burnt layer at Kot Diji there was the deposit which contained the preceding Kot Diji material as well as the Mature Harappan. In its fullness this latter occupation continued, as stated earlier, for nearly 4.5 m. Unfortunately, there are no radiocarbon dates for the Mature Harappan levels.

Proceeding some 130 km south from Mohenjo-daro on the same side of the Indus, one comes to the well-known site of Amri. As far back as 1929 N.G. Majumdar had trial-trenched a part of the mound and shown that the lower deposits were pre-Harappan in nature (Majumdar 1934). Dacoits operating in the region, however, put an end to his brilliant career and it was thirty years later that the site was put under detailed investigations by J.M. Casal. He divided the total deposits into five periods, with certain subdivisions, as follows (fig. 4.12): Amri IA-D, Amri Culture; IIA-B, Intermediate; IIIA, Mature Harappan; IIIB, transition; IIIC, Mohenjo-daro upper levels; IIID, Jhukar; IV, Jhangar; and VA and B, Mediaeval (Casal 1964).

The subdivisions in Period I are largely based on pottery (figs. 4.13-16). Thus, for example, a comparison of the pottery of Amri with that of Togau in Baluchistan shows that while concentric rows of radiating hooks, typical of Togau C, are present in IA and B, the typical designs of Togau D were noted briefly in IB but became more evident in Amri IC and D. The use of black as well as red paint

PERIODS			PLACEMENT OF STRATA — EAST	PLACEMENT OF STRATA — WEST
			SURFACE	
V HISTORICAL		B		
		A		
			DESERTION	
IV JHANGAR				
III INDUS CIVILIZATION	JHUKAR	D		
	MOHENJO-DARO (Upper Levels)	C		
	TRANSITION	B		SURFACE
	HARAPPA	A	DESERTION	
II INTERMEDIATE		B		
		A		DESERTION
I AMRI CULTURE		D		
		C		
		B		VIRGIN SOIL
		A		
			VIRGIN SOIL	

A M R I: CULTURE-SEQUENCE

Fig. 4.12

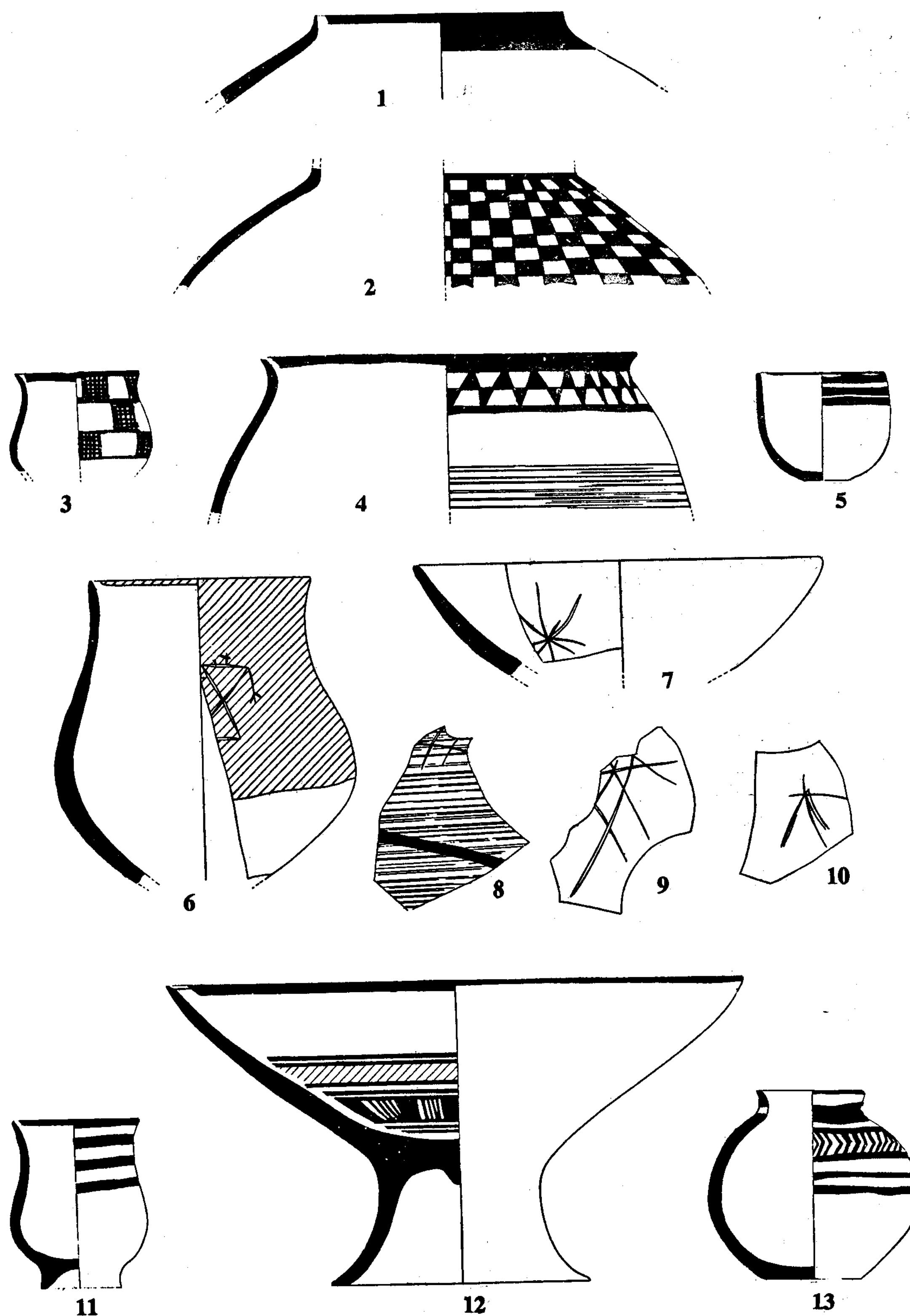


Fig. 4.13 Amri: Pottery, Period IA, scale 1/4

is a conspicuous feature of the Amrian pottery and seems to have had its ancestry in the hilly cultures of Baluchistan where bichromy and polychromy were the general fashion in a major part of the fourth millennium BC. In the earlier levels of Period I there is some handmade pottery as well. The other finds from Period I included chert blades, stone balls, bone tools, terracotta and shell bangles and a few pieces of copper indicating a limited use of metal. While no noteworthy structural remains were noted in IA, IB produced structures of mud bricks. In IC and D, besides normal living rooms, rectangular structures divided into small cells were noted. These were found filled with brick-debris and earth and might have been basements for some superstructure or may have been used for storage.

Towards the end of Period ID there appeared a few pottery-shapes as well as painted designs which are normally associated with the Harappan Civilization. These increased (fig. 4.17) in Periods IIA and B which, on that account, have been labelled as 'Intermediate'. By IIIA the Amri pottery almost disappeared and the Harappan completely took over the scene. It may also be added that a few of the shapes and designs in ID, IIA and B recall the Kot Dijian pottery.

Radiocarbon dates are available only for Period I at Amri. These are: 3507/3401/3386 BC for Subperiod IB and 3298/3240/3171/3169/3106 BC for Subperiod IC. Though there is no date for IA, it may well be assumed that the beginning of Amri Culture was somewhere around the middle of the fourth millennium BC.

West of the Indus delta, some 88 km from Karachi and on the eastern side of the Sonmiani Bay, Balakot occupies an eminent position to have functioned as a seaport during the Harappan times. It has, however, brought to light a still earlier culture which the excavator, G.F. Dales, has termed Balakotian (Dales 1979a & b and 1981). This culture has an intermixture of polychrome Nal and Anjira pottery along with the Amrian. Four radiocarbon dates, viz. 3998, 3974, 3686/3650 and 2883/2796/2784 BC, place the Balakotian Culture well settled in the fourth millennium BC and extending into the third. This rather long duration seems to be in keeping with the thickness of the deposits which was over 7 m and accounted for eleven major phases.

For the Harappan occupation the dates are 2584 and 2455/2416/2405 BC, which shows a gap between the Balakotian and the Harappans. Such a break of occupation is also indicated by the stratigraphy of the site also.

Situated as it is on the southern coastal strip of Baluchistan, Balakot was greatly dominated by the pottery styles from the uplands in the north. Thus, the Nal Ware, because of its polychromy, was conspicuous in the lower 5 m of the Balakotian deposits, even though its percentage was not very high. In the earliest levels were also noted paintings in Togau style, signifying infiltration from lands even further to the north, viz. Kalat-Anjira region. Interaction with the main Indus plains, however, was indicated by Amri IC-D pottery which became more dominant in the upper levels.

A feature worth mentioning is that some of the vessels had potters' marks, either incised or painted. It is not unlikely that such marks may have contributed to the morphology of the signs used in the Indus script (Lal 1992).

Chert blades, often showing a sheen, indicate their use in harvesting. Some had a ventral retouch, not so common elsewhere. The use of copper is duly attested to, though in a restricted degree, by the presence of four pieces of undetermined shape. No less noteworthy is the presence, amongst the beads, of four examples made from lapis lazuli — a

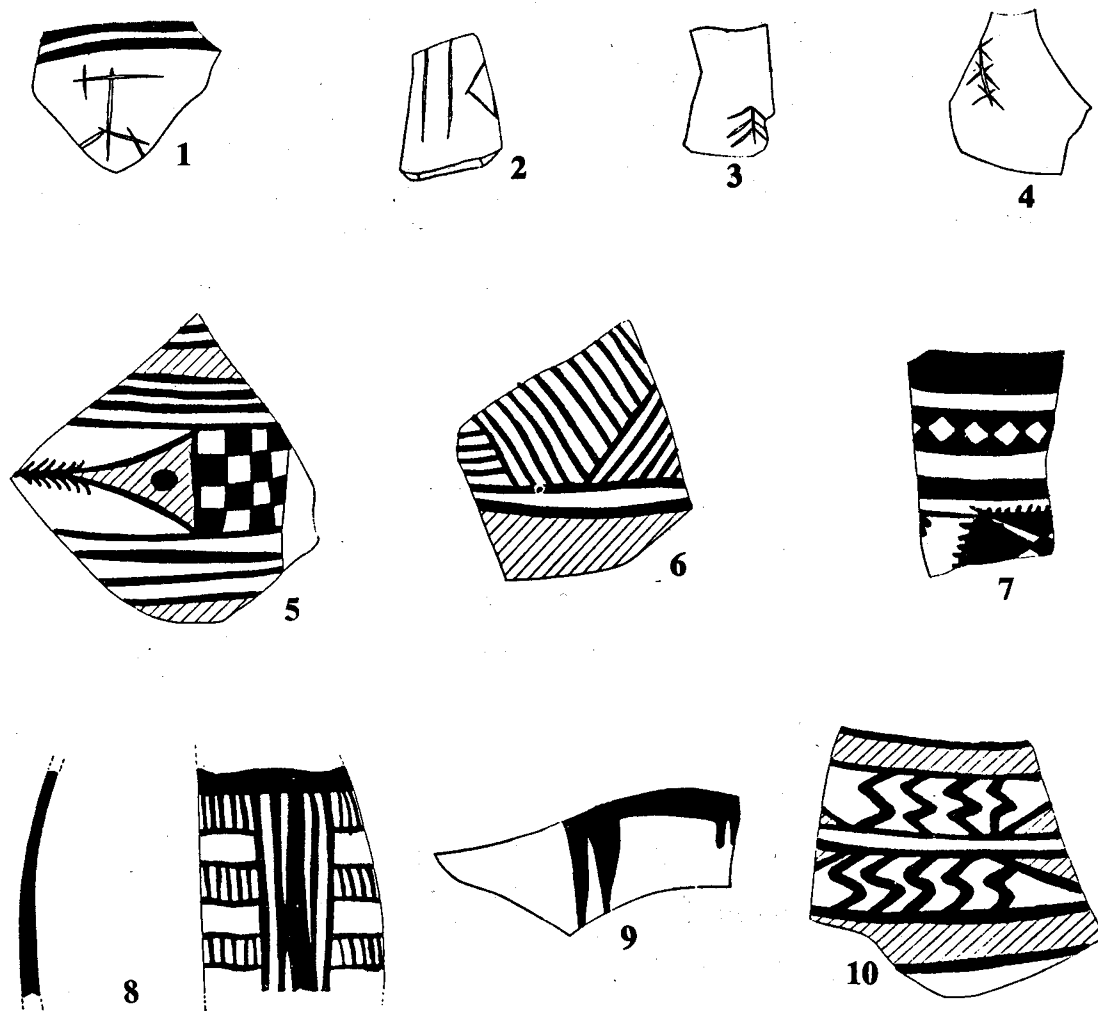


Fig. 4.14 Amri: Pottery, Period IB, scale 1/3

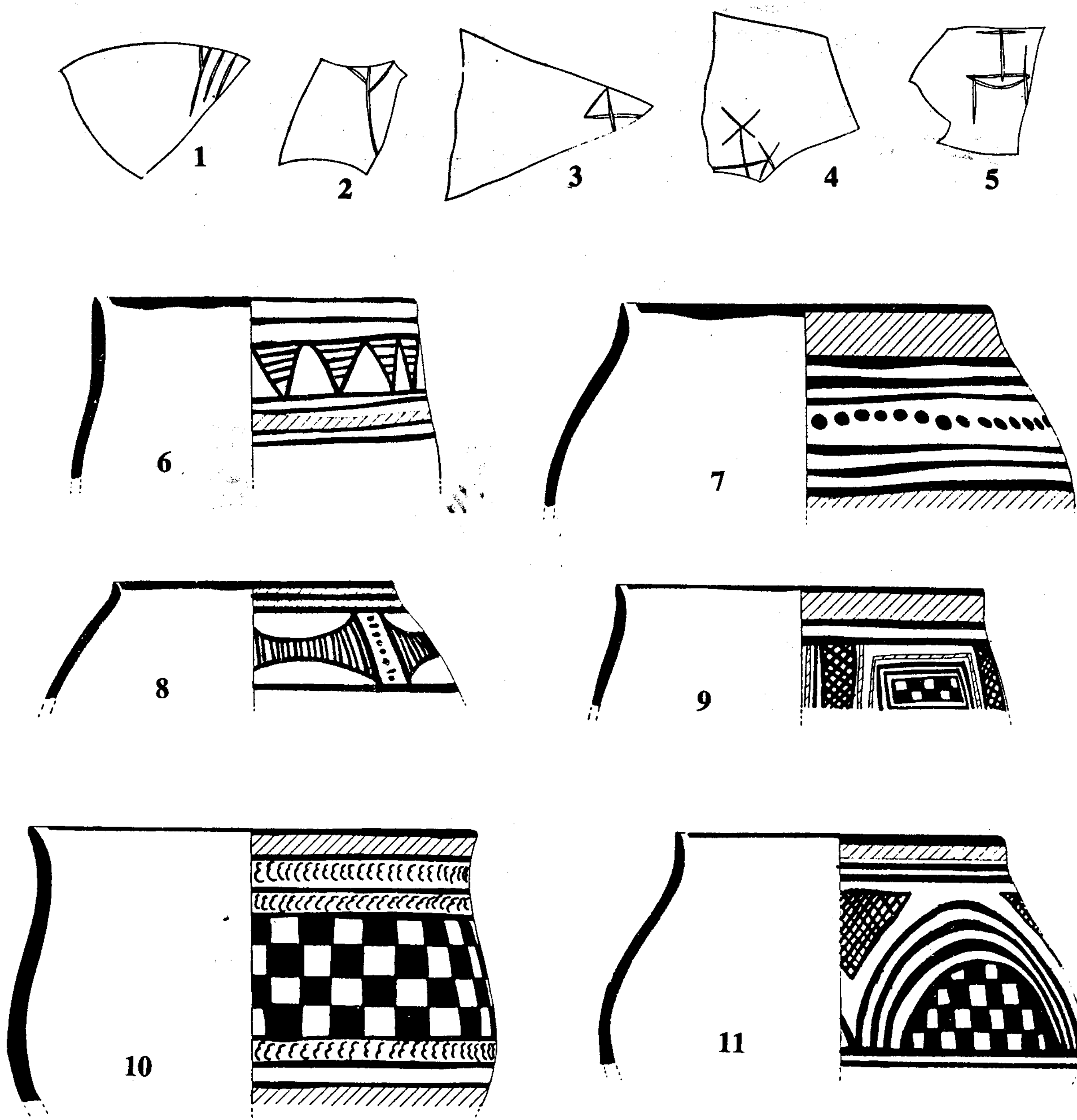


Fig. 4.15 Amri: Pottery, Period IC, scale 1/3

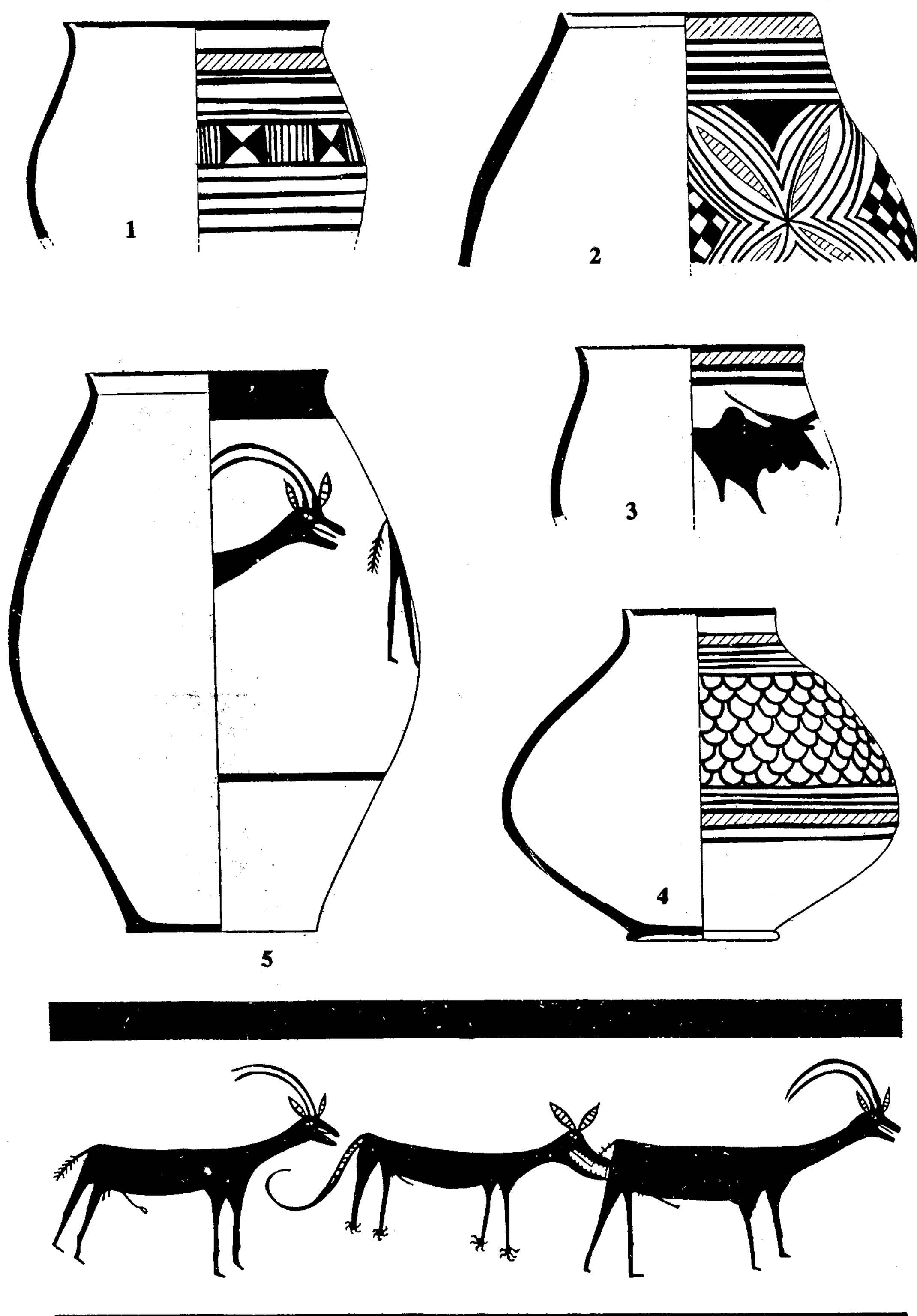


Fig. 4.16 Amri: Pottery, Period ID, scale 1/4

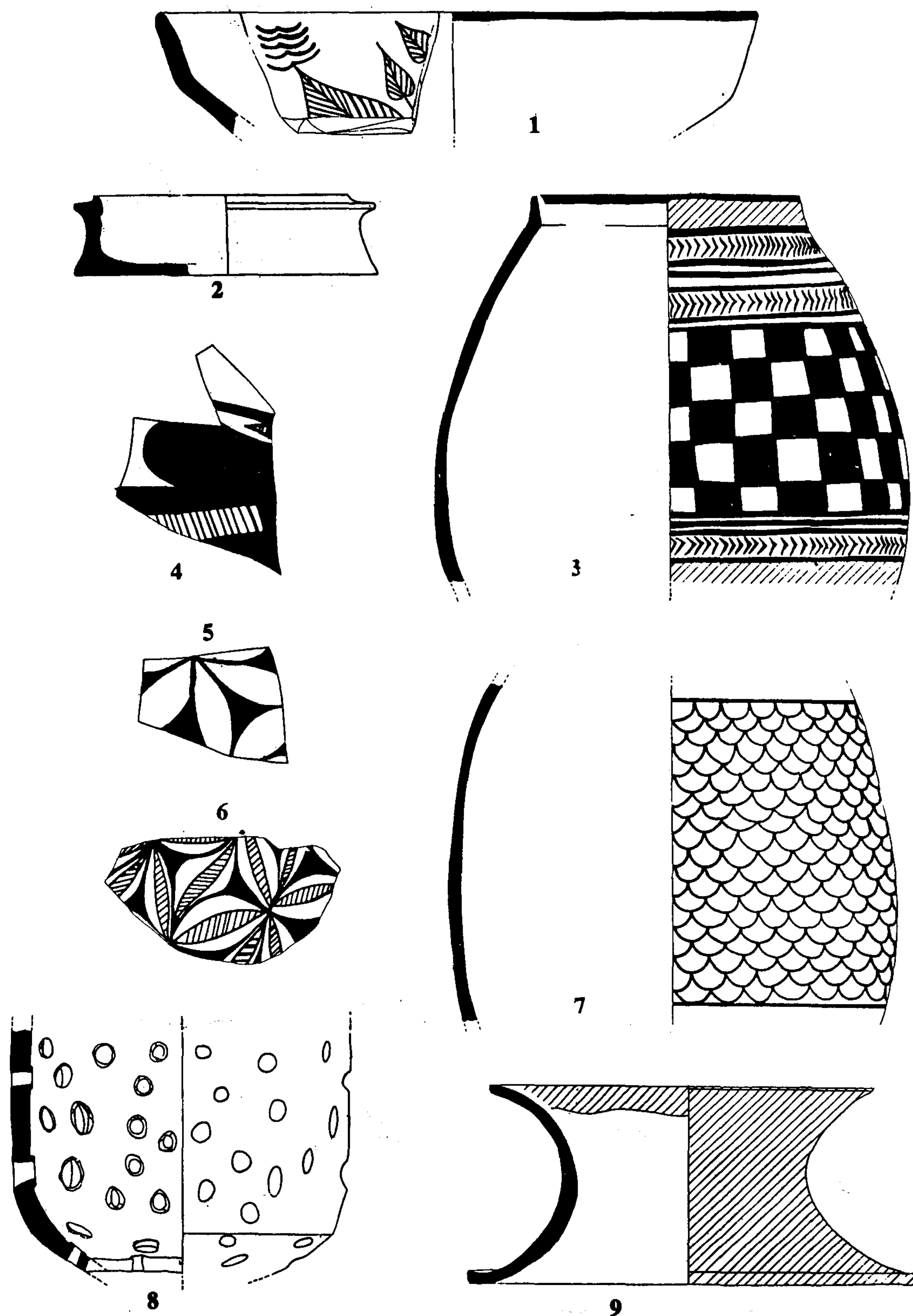


Fig. 4.17 Amri: Pottery: 1, Period IIA, rest, IIB, scale 1/4

[redacted] [redacted]

material which must have been imported from elsewhere. Amongst the domesticated animals, the cattle outnumbered sheep and goat.

The houses were made of mud bricks having a size 40 x 20 x 10 cm, i.e. in the ratio of 4:2:1, which continued into the Harappan times. The floors of the rooms were also sometimes paved with bricks. The walls were not haphazardly laid out but had a definite alignment, viz. northeast-southwest and northwest-southeast, though it was not the same as in the subsequent Harappan times, viz. north-south and east-west.

By now we have had a good idea of what had happened in Baluchistan and the main Indus valley prior to the coming into being of the Mature Harappan Civilization. We may now turn our attention to the northeast and see what the situation was along the Ghaggar and its tributaries. Though now dry for a major part of its course, there is ample evidence that in antiquity the Ghaggar was very active and had a wide course. All along the banks of this river and of its tributaries in India and for a considerable length in Pakistan, ancient sites have been located, which could not have come into being without the river having been a veritable source of water-supply. Mughal's work in Cholistan (Pakistan) has brought to light flourishing settlements in that area during protohistoric times, and it is quite likely that more sites will turn up if systematic explorations are carried out further down along the now-dry bed. Evidence is not conclusive whether the Ghaggar flowed directly into the sea —perhaps it did, or it joined the Indus at some point lower down. Hence it is necessary to carry out further investigations and ascertain the reality.

Mughal has tabulated 377 sites in the Cholistan region, of which 99 belong to the earliest period called the Hakra Ware Period. (In Cholistan region the Ghaggar is known by the name of the Hakra). Forty sites pertain to the pre-Mature Harappan (also called Early Harappan) times and 174 to the Mature Harappan Period. Fifty sites are ascribable to late Harappan times, whereas 14 belong to the Painted Grey Ware Culture (Mughal 1990a and b).

Under the general name 'Hakra Ware' go at least three to four varieties of red ware in different shades. Some are handmade and some wheel-made. Under one category are pots whose exterior is coated with mud intermixed with pottery. Such examples also occur in Jalilpur I, Amri IA and Sarai Khola I. In another category, the exterior bears incised lines, sometimes oblique or horizontal and sometimes curvilinear. Then there are wheel-made pots of fine fabric, with a red/chocolate slip and bearing broad black bands along the neck or shoulder. There is still another category in which the red body is covered all over with a black slip. Finally, the Hakra ceramics also show up a few sherds of black-painted buff ware. The other antiquities found at Hakra sites include: parallel-sided blades with or without retouch, scrapers, borers, leaf-shaped arrowheads, stone grinders, terracotta bangles and animal figurines of cattle (with conjoined legs) and a few bits of copper.

With a shallow deposit, more than half of the Hakra Ware sites appear to have been shifting camps. However, there are quite a few which were regular settlements. All these were single-period sites, only two with a succeeding Early Harappan and four with Mature Harappan settlement. Some of the Hakra Ware sites are located on ancient dunes, which would indicate that dune-formation had already started before the second half of the fourth millennium BC — a likely horizon for the Hakra Ware.

The pottery and other artefacts of the pre-Mature Harappan (or Early Harappan)

settlements in Cholistan are by and large related to Kot Diji I and Jalilpur II, which have been discussed earlier. But something ought to be said about their patterning, size, etc. Thus, although the number of sites of the Early Harappan Period is much less (40) as compared to that of the sites of the Hakra Ware Period (99), not only did the nature of the former change (not more than 8 per cent of these were camp-sites as against 52 per cent of the latter), but their size also increased. Further, many of the Early Harappan sites were found to have an industrial component besides a mere residential one — a noteworthy feature in an evolving socio-cultural complexity. As regards size, it may be worth mentioning that whereas more than half of the Early Harappan sites were less than 5 hectares in area, and one-fourth between 5 and 10 hectares, a few of them were substantially large. Thus, for example, Jalwali is 22.5 hectares and Gamanwala as much as 27.3 hectares. This pattern shows that amidst a large number of villages some towns were beginning to emerge, which, as would be seen from Kalibangan I (below), were not only well planned and direction-oriented but also fortified.

By the Mature Harappan times there was a considerable increase in the size of the settlements in the region. For example, Ganweriwala was as much as 81.5 hectares which is almost the same size as that of Mohenjo-daro. Secondly, at many of the sites a clear separation of the residential area from the industrial one has also been noted, signifying a greater emphasis on industries — a necessary part of growing trade and commerce. This phenomenon, as will be discussed later, also seems to have given rise to a stratification in the social order. There also seems to have been a sort of population explosion during the Mature Harappan period, since as compared to only 40 Early Harappan sites there were as many as 174 in the Mature Harappan times.

The succeeding cultural stage in Cholistan region is what may be called Cemetery H-related. The sites are lesser in number and qualitatively poorer as compared to the Mature Harappan ones.

The latest protohistoric settlements in Cholistan are represented by the Painted Grey Ware which goes back to the last quarter of the second millennium BC, with a forward extension into the first quarter of the first millennium BC. In this context it needs to be stated that no iron seems to have been reported by Mughal from any of the Painted Grey Ware sites in Cholistan.

It would be seen that whereas very useful spatial data have been collected through explorations in Cholistan what is needed now is to carry out closely-observed excavations at a few selected sites in the region in order to find out evidence relating to transition (if there is any) from the Hakra Ware stage to the Early Harappan and again from the Early Harappan to the Mature. There are at least two settlements of the Hakra Ware, viz. Kuchanwala and Nahrenwala, which also contain the Early Harappan material. Likewise, Chak 76 and Sandhanwala, etc. have yielded both Early and Mature Harappan remains.

Moving further up along the bed of the Ghaggar, one comes to a very important site named Kalibangan, in District Hanumangarh, Rajasthan. It has the usual pattern of bipartite Harappan settlement — a larger mound on the east and a relatively smaller one on the west. (There is also a third, very small, mound on the east of the larger mound, which has yielded Mature Harappan ritualistic structures). Altogether, these mounds have a periphery of about 1.5-2 km, and the maximum height is about 10 m above the surrounding ground-level.

Excavations at this site have brought to

light two cultural periods, the upper one, II, being typically Mature Harappan and the lower, I, ascribable to what has variously been termed as proto-Harappan, pre-Mature Harappan, Early Harappan or just pre-Harappan (Lal 1979a; Thapar 1975). While we shall deal with the Mature Harappan occupation in a subsequent chapter, here we are concerned with Period I which preceded the Mature Harappan.

Because of the massive Mature Harappan superload, not much area of Period I could be exposed. In fact, the areas which easily lent themselves to such a work were the peripheral ones, mainly on the southern and partly along the northern edge of the western of the two mounds referred to above. The eastern mound revealed that even the earliest occupation over there began only with the Mature Harappans, though in the lower levels Period I pottery was also present.

However, in spite of the limitations of the area exposed, an insight into the planning of the habitation by these pre-Mature Harappans could be had. The walls of the houses were laid out along the cardinal directions, i.e. north-south and east-west, which determined the layout of the streets as well. Although no major street could be exposed, a lane having a width of 1.5 m and running east-west, with houses on both sides, was duly revealed (pl. XXVA). The houses were made of mud-bricks which measured 30 x 20 x 10 cm. Though these were not in the same proportion as those in the Mature Harappan times, yet a sense of proportion, viz. 3:2:1, is self-evident. There was also a method in the laying out of the courses which, in elevation, showed headers alternating with stretchers. The walls were provided with mud plaster, presumably to protect them against rains. In these pre-Mature Harappan levels as many as five structural subperiods were met with, accounting for a total deposit of 1.6 m.

An average house of Period I consisted of a courtyard around which were located the living rooms. Cooking was done in the courtyard where ovens were installed (pl. XXVB). These fall in two categories: one operating above the ground-level and the other below it. In the former case, there was a sort of nozzle through which firewood could be inserted. In the latter, however, the fuel must have been inserted from the top. Both the varieties were plastered from time to time. These ovens recall to mind the modern *tandūrs*, so popular in this part of Rajasthan and in Panjab and Haryana. In the courtyard were also located cylindrical pits plastered internally with lime. These may have been used for the storage of grains, though it must be stated that no cereals were actually met with. The sullage was discharged through drains for which kiln-fired bricks had been used. This, incidentally, shows that the firing of bricks may not have been necessarily a Harappan innovation.

Even this pre-Mature Harappan settlement was duly fortified (fig. 4.18). Oriented more or less along the cardinal directions, the fortification-walls made a rough parallelogram on plan, the eastern and western sides measuring respectively 250 and 240 m. While the southern side was in a straight line, measuring 170 m, that on the north ran straight for 115 m from east to west and then turned southwestward for about 45 m. Over here was an entrance, whereafter the wall turned west-northwest for another stretch of 50 m to join the northern end of the western wall. Such a layout of the wall in the northwestern part provided full protection to the entrance from both sides, in case there be any unauthorized entrance or attack. It may also be stated that this gateway was close to the river and evidently served to bring in men and material through riverine transport.

Two structural subperiods were noted in the fortification walls. In the earlier, the width

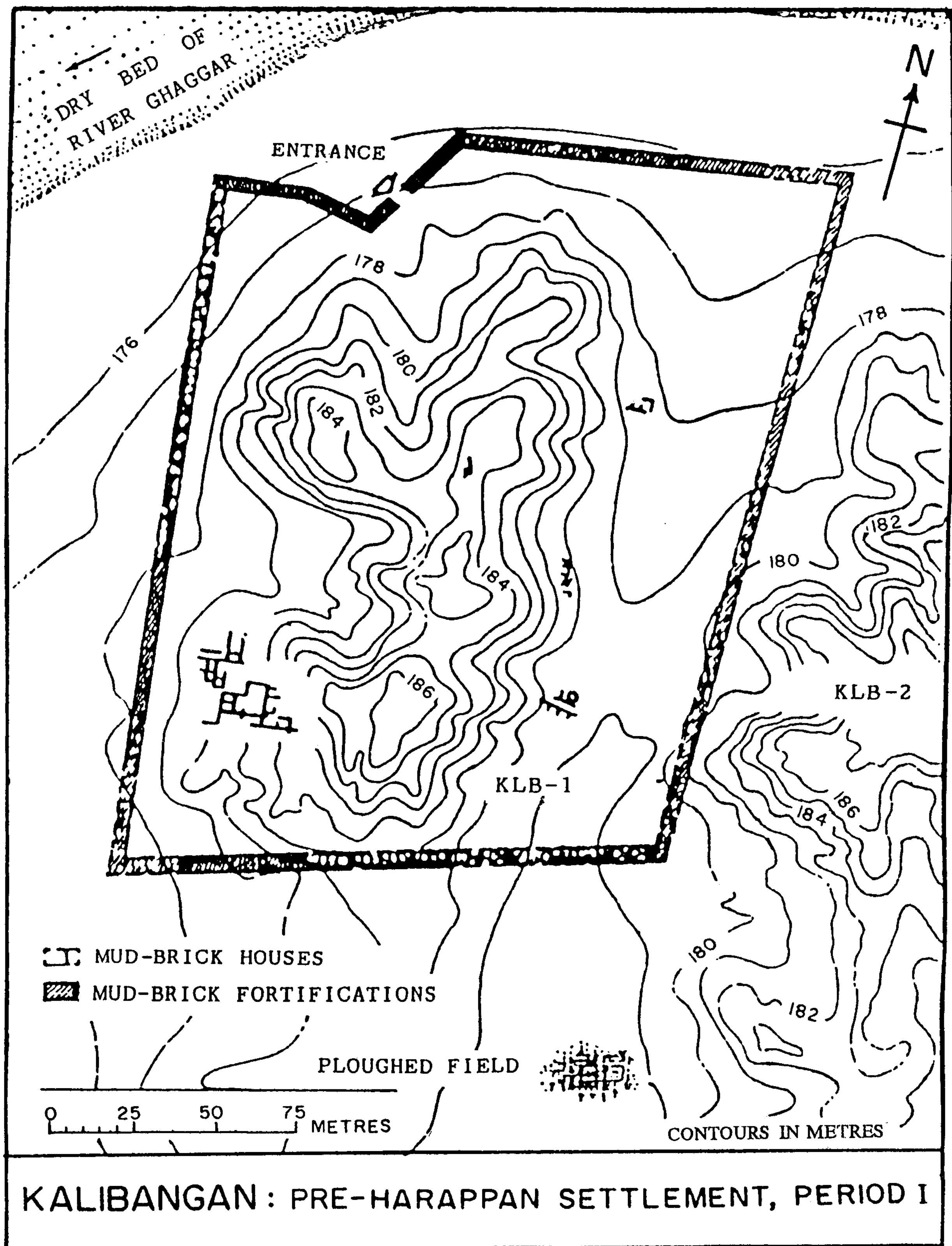

DRY BED OF RIVER GHAGGAR
N
ENTRANCE
178
176
180
182
184
186
KLB-1
KLB-2
MUD-BRICK HOUSES
MUD-BRICK FORTIFICATIONS
PLOUGHED FIELD
0 25 50 75 METRES
CONTOURS IN METRES
KALIBANGAN: PRE-HARAPPAN SETTLEMENT, PERIOD I

Fig. 4.18

was just 1.9 m. However, subsequently the width was enlarged to 3-4 m by making additions on the inner side. A minor tapering was noted on the exterior whereas the interior was vertical. There was also evidence of the fortification-walls having been plastered. The mud-bricks used in the fortifications were of the same size as those used in the houses, viz. 30 x 20 x 10 cm. Did the pre-Harappans of Kalibangan have a special fancy for the ratio of 3:2:1? The size of the fortified area also works out in the ratio of 3:2 (length 240-250 m and width 170-180 m).

A noteworthy feature relating Period I at Kalibangan was that of an agricultural field, not far away from the settlement. The stratigraphical horizon of this field was clearly established by the fact that after the abandonment of the field and its being covered up by a layer of sand, indicating some time-gap, there came up over a part of the field certain structures which belonged to the subsequent Mature Harappan settlement. The furrows of this field ran in two sets of rows, cutting each other at right angles. Thus, while one set was laid out east-west, the other was north-south (pl. XXVIIA). Further, whereas the intermediary space in between the furrows in the former set was only 30 cm, that in the latter case was 1.9 m. This sort of layout of the furrows becomes intelligible when the same is compared to what still obtains in that area (pl. XXVIIB). Today, the practice is to grow horse gram in the short-distanced furrows and mustard in the wide-distanced ones (pl. XXVIIC). There seems to be more in this arrangement than what meets the casual eye. Kalibangan falls on 29 degrees northern latitude, and the plants referred to above belong to the winter crop. During this season the sun goes down to the southern hemisphere, with the result that longer northward shadows are cast during this season than in the summer. Thus, if the mustard plants are grown in the east-west rows, they would cast long shadows on the other plants, viz. those of the horse gram and would debar them from the sun's rays, which would hamper their growth. This grid-patterned ploughing of the field may be noted not only in northern Rajasthan, where Kalibangan is located, but also in Haryana, Panjab and even western Uttar Pradesh. Indeed, there is no reason why a skilful and practical system once evolved should not be carried down the ages, particularly in a little-changing Indian rural scenario.

Technologically, the inhabitants of Period I had duly entered the copper/bronze age, though the lithic element also continued. Even in the limited area, the excavation yielded an axe, a *paraśu* and a bangle of copper/bronze. It is interesting to note that even today the *paraśu* is used in parts of Rajasthan for cutting scrubby bushes to obtain firewood. It is hafted on to a wooden handle. The economy of these people was based largely on agriculture and animal husbandry, besides small-scale trade. For example, the copper already referred to and shell, agate, carnelian, etc. used for bangles and beads must have been brought from elsewhere.

The pottery from Period I of Kalibangan calls for special attention, since it is representative of most of the pre-Mature Harappan settlements in northeastern Rajasthan and Haryana. On the basis of the fabric, a sixfold division has been made, viz. A-F (figs. 4.19-22 and pl. IIIA). Of these, Fabric A was the most characteristic and accounted for the bulk of the pottery. Its essentials were: a rather indifferent potting on the wheel, medium-grained clay, absence of slip and the painting of designs in two colours, viz. black as well as white. This last-named feature ties up the Kalibangan pottery with that from sites as far southwest as Kot Diji and as far northwest as Rehman Dheri. The most common distinguishing feature of the paintings was a thick band round the rim, which some-

times descended down to the shoulder. Amongst the other designs mention may be made of: semi-circular arches with the upper intervening space being either hatched or filled, oblique criss-cross lines, latticed triangles, successive rows of loops giving the effect of the (typically Mature Harappan) fish-scale pattern. The shapes in this fabric included bowls and basins with a tapering or convex profile and vases with globular body, everted rim and disc/ring/pedestal base.

Fabric B stands out on account of special surface-treatment, viz. the coating of sand-*cum*-clay on the exterior of the jar, which is the only shape available in this fabric. The coating, when still wet, seems to have been roughened either by impressing it with a tortoise shell or by combing it. This treatment was given to the globular part of the body, while the rim, neck and sometimes even the shoulder were slipped and painted over with a thick line or a series of thin ones. It is also interesting to note that paintings were executed even on the roughened surface. These included floral as well as faunal motifs. Amongst the former mention may be made of sunflower (?), a five-petalled flower, and a leaf-*cum*-horn design. In the latter two cases white colour was used to fill in the leaves and the horn. The faunal motifs were in black colour only and included the bull, stag, duck and scorpion (fig. 4.19).

Fabric C is the one that comes closest to the Mature Harappan Ware. Made of fine and well-levigated clay, it was carefully potted on the wheel, provided with plum to red slip and was relatively better fired than the other fabrics. In this case the use of the additional white colour was very rare and only the black was used. The designs consisted of cross-hatched loops, fish-scales sometimes interspersed with dots, a row of apex-down and filled-in triangles, metopes, besides, of course, the thick and thin bands which were almost invariably present. Interesting also was the portrayal of a fowl underneath a banana-like plant (fig. 4.19).

In fabric, D was not far removed from C. It too was sturdy and had a red slip. Most noteworthy in Fabric D were basins and troughs on the inner sides of which there were deeply incised designs, drawn when the pots were in a leather-hard state (fig. 4.22). There also occurred in this fabric flanged jars and tall cylindrical vessels, the former of which as it is and the latter, if perforated, are characteristic of the Mature Harappan pottery.

Pots classified under Fabrics E and F were respectively buff/reddish buff and grey. However, the shapes were the same as in other fabrics, e.g. dishes- and cups-on-stand, flanged-rim jars, etc. For the paintings which included the fish and fowl, besides linear and curvilinear designs, both black and white colours were used.

On some pots of the aforesaid fabrics, there also occurred graffiti which may have been just potters' marks but which, in conjunction with other pre-Harappan graffiti noted elsewhere, may have given rise to the forms of the Mature Harappan signary (Lal 1992).

Interest attaches to how the Period I settlement at Kalibangan got abandoned. Towards the end of the fifth structural sub-period there seems to have occurred an earthquake, the scars of which are left at the site in the form of faulted strata (pl. XXVIA) and cleft walls (pl. XXVIB). Incidentally, this would be the earliest archaeologically identified earthquake in India and perhaps even in the world.

Proceeding further northeast, about 120 km from Kalibangan as the crow flies, one comes to another important site called Banawali, in District Hissar, Haryana. It is located on the right bank of the Sarasvatī which is now dry. The ancient mound, rising to a height of about 10 m above the surrounding plains, cov-

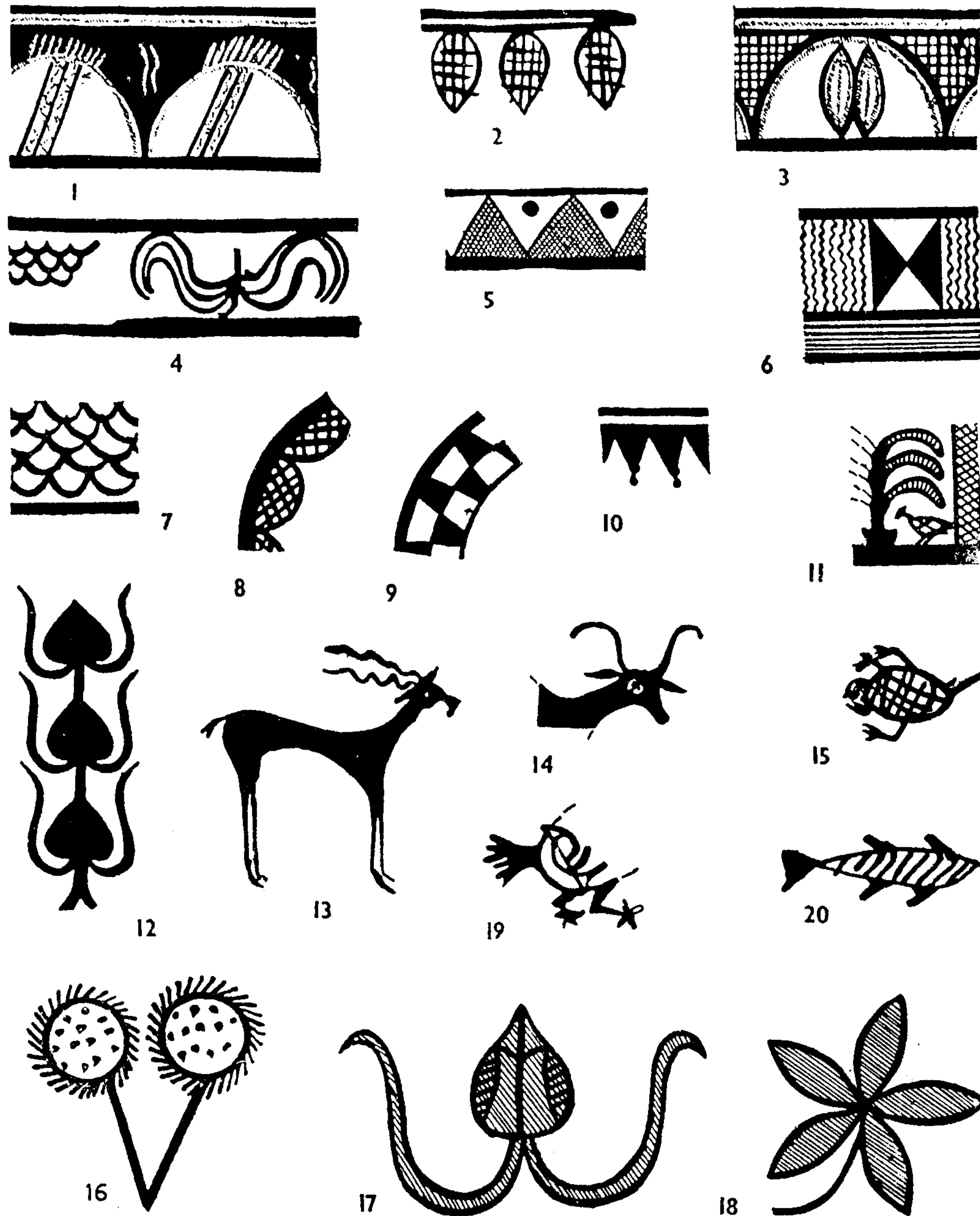


Fig. 4.19 Kalibangan: Painted designs on pottery of Period I: nos. 1-5, on Fabric A; 6-11, on Fabric C; 12-18, on Fabric B; and 19-20, on Fabric E. Solid line or filling denotes black colour; hatching, white

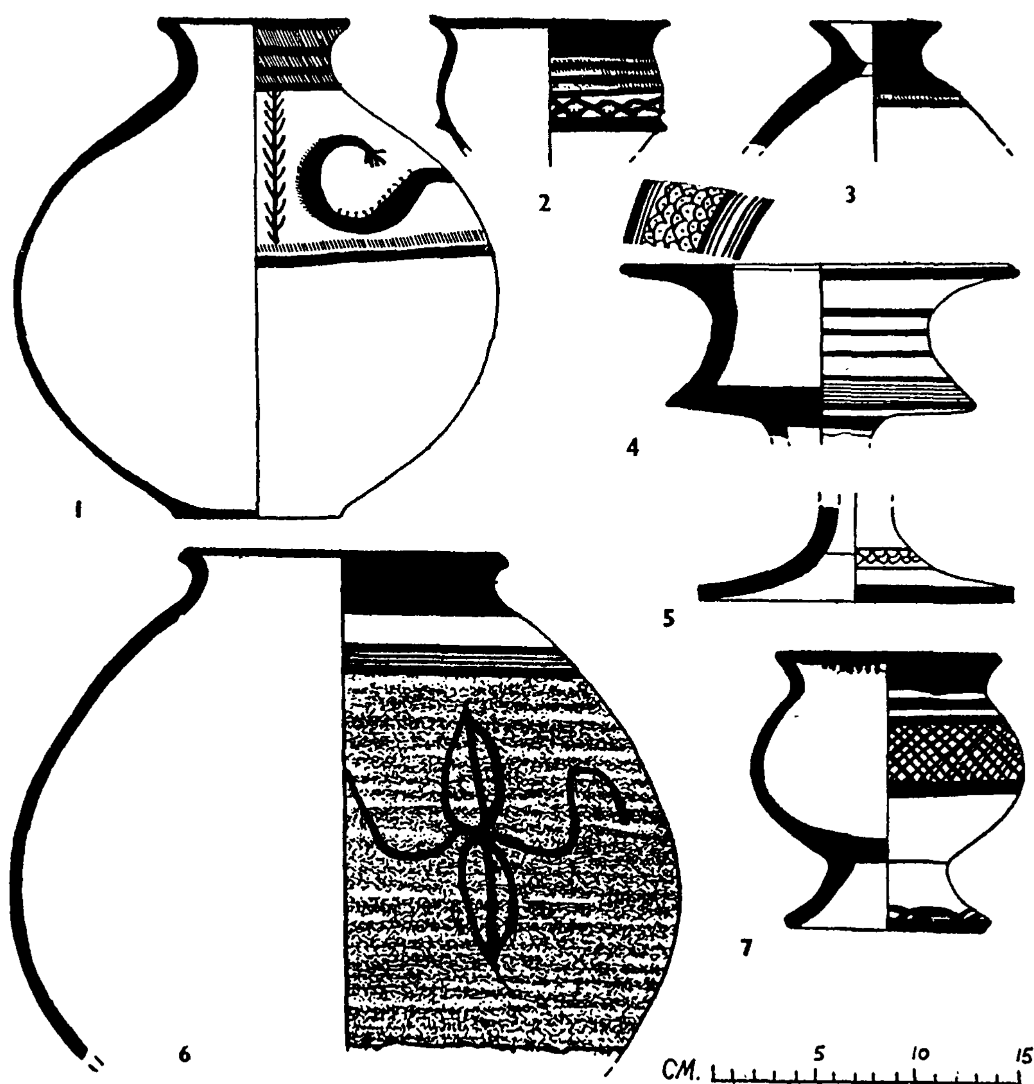


Fig. 4.20 Kalibangan: Pottery, Period I: nos. 1-3 and 7, Fabric A; 6, Fabric B; 4-5, Fabric C. Solid line or filling denotes black colour; hatching, white

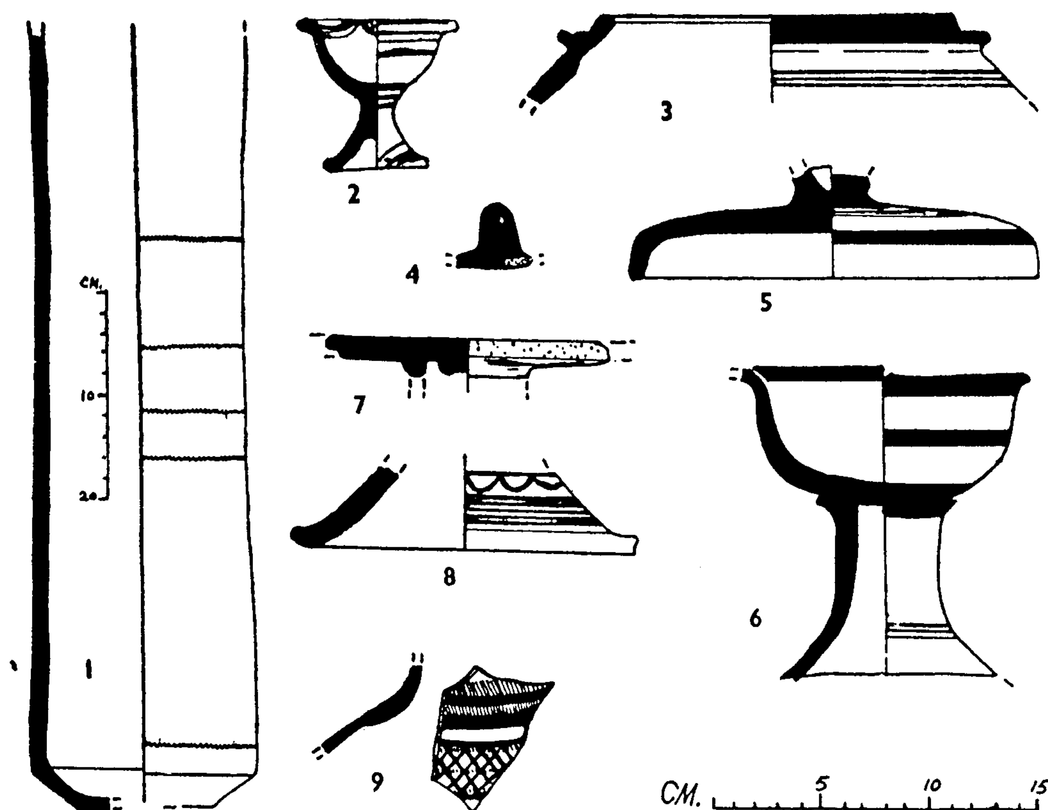


Fig. 4.21 Kalibangan: Pottery, Period I: no. 1, Fabric D; 2-6, Fabric E; and 7-9, Fabric F

ers an area approximately 400 x 400 m.

Excavations carried out by R.S. Bisht (1982, 1987, *IAR-1986-87* and *1987-88*) have brought to light three cultural periods, viz. I, pre-Mature Harappan; II, Mature Harappan; and III, post-Mature Harappan. While the last two will be dealt with subsequently, here we shall discuss the layout, cultural contents, etc. of only Period I.

As in the case of Kalibangan, at Banawali too a very small portion of the settlement of Period I could be exposed because of the overlying massive Mature Harappan strata. Nevertheless, in an area where the later material had eroded, a glimpse of the pre-Mature Harappan structures could be had. The houses, made of mud bricks, were laid out along the cardinal directions, i.e. east-west and north-south. Like those of Kalibangan, the earliest settlers at Banawali too made their bricks in the ratio of 3:2:1, though their actual sizes varied, being 39 x 26 x 13 cm, 36 x 24 x 12 cm and 30 x 20 x 10 cm. (At Kalibangan, it may be recalled, only the last-named size was used). Banawali I has also yielded square bricks, measuring variously 24 x 24 x 8 cm or 27 x 27 x 9 or 30 x 30 x 10 cm, showing, however, a set ratio of 3 x 3 x 1. It needs to be added that whereas the Kalibangan I people used the kiln-fired bricks very sparingly, viz. in drains only, their counterparts

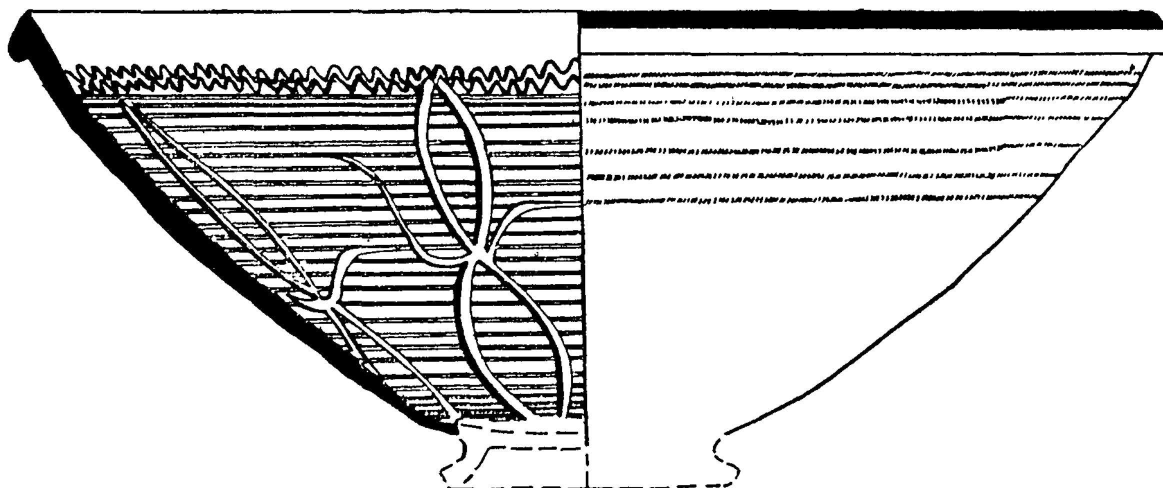


Fig. 4.22 Kalibangan: Period I basin bearing deeply incised grooves and designs, scale 1/4

at Banawali used such bricks in house-construction.

Within the houses there were ovens and fire-pits. In one case, a circular fire-pit was outlined with mud bricks. There also existed another variety of circular pits which were much deeper and whose walls were plastered. These may have been used for storage of grains.

The total thickness of the deposits of Period I was about 3 m. On the basis of the associated material, structures, etc. this has been divided into three subperiods, viz. IA, IB and IC. To the earliest, i.e. IA, accounting for a deposit of 60-80 cm, belonged two structural phases. Subperiod IB, 1.6 m in thickness, is significant because during it came up a fortification-wall. At one place, its available height was about 2 m and the thickness 3.6 m at the base and 3.2 m at the extant top.

The Period I pottery of Banawali had all the six fabrics encountered in Period I of Kalibangan. In this context, however, attention may be drawn to a few painted designs. On a pot of Fabric B the painted design seems to be a stylized depiction of a horned animal (Bisht 1987: 143, fig. 3), with the likeness of which we are familiar from sites as far away as Kot Diji in the southwest and Lewan in the northwest. In another case, the excavator speaks of 'a sherd depicting a canopied cart with spoked wheels' (Bisht 1982: 116). In so far as the other finds are concerned, these were surprisingly few: maybe due to the limited area excavated. However, these included an arrowhead and a fish-hook of copper, beads variously of carnelian, lapis lazuli, steatite, bone and clay, bangles of shell, faience and clay and two spatulae and a handle of bone. But most noteworthy was the occurrence of 'a stone weight, perhaps the first of its kind. Its weight is 87.855 grams. Although it does not fit into the binary system of Indus weights, it closely approximates a sum a hundred times the supposed unit weight of 0.857 grams (Marshall 1931: 590-91; Mackay 1938: 602, 606, Table III)' (Bisht 1982: 116).

Subperiod IC, accounting for a deposit of 90 cm to 1.2 m in thickness, is marked by 'drastic and diagnostic changes in architecture, planning and antiquities in an otherwise continuing cultural *milieu* of the preceding subperiod. The entire settlement was planned and constructed *de novo*. The dichotomous layout which the Harappans adopted was

introduced during this subperiod. The fortification of the previous period was externally chiselled or partially sliced away and doubled in width for housing the citadel, and the lower town was laid out contiguously towards the east as well the north, while the position in the west remained unresolved' (*IAR 86-87: 33*). This subperiod yielded a ware with deep red slip and having certain Mature Harappan forms. The earlier pottery, of course, continued. Noteworthy also was the occurrence of terracotta cakes and chert blades. Further, bricks showing the typical Harappan ratio of 4:2:1 were also manufactured, in addition to the ones already in vogue. The cumulative significance of all the foregoing data will be discussed a little later.

That the culture encountered in Period I of Kalibangan and Banawali was very widely spread in northeastern Rajasthan, Haryana and Panjab is demonstrated by the list of 136 sites of pre-Mature Harappan sites published by J.P. Joshi *et al.* (1984). Since then many more sites have come to light. However, here we shall refer only to the following, since these have been subjected to fieldwork/excavation, though in varying degrees: Sothi, Nohar and Sherpura in Rajasthan and Balu, Siswal, Mitathal, Rakhigarhi, Arda and Kunal in Haryana.

While at Nohar and Sothi, investigated by A. Ghosh, the occupational strata ranged from 1 m to 1.3 m, at Sherpura it was only 50 cm. However, this last-named site has yielded, besides the various pottery-fabrics of Kalibangan I, 'some sherds of perforated pots and terracotta objects like cakes' (Dikshit 1979: 105-06).

Balu in District Jind, Haryana, has been excavated by U.V. Singh and Suraj Bhan (1982). Here three occupational periods have been identified: I, II and III, from bottom upwards. Period I is similar to Kalibangan I; II is Mature Harappan; and in III late Harappan elements made their appearance. Interestingly, the pottery component of Period I was so strong that it continued, though in a diminishing manner, not only during the Mature Harappan Period but also later.

Although the mound at Siswal, District Hissar, Haryana, is quite a sizable one, 300 x 200 m on plan and over 12 m in height, the area excavated is almost a tiny dot, a mere 2 x 2 m. Anyway, two cultural periods were identified (Bhan, S. 1971-72). From bottom upwards, Siswal A represented the Kalibangan I complex. However, evidently because of the limited nature of the dig, no structures were met with nor Fabrics E and F of the six Kalibangan ones. A single sherd of black-and-red ware has also been reported whose significance yet remains to be determined. While Siswal A complex continued into Siswal B, Mature Harappan elements also made their appearance, such as perforated jars and S-shaped vessels.

Mitathal, in Bhiwani District, Haryana, has a twin mound, but because of inadequate excavation it is not known if the Kalibangan pattern of a 'Citadel' and a 'Lower Town' was also followed here. However, its lower levels (Mitathal I) yielded Siswal B complex which included Kalibangan material along with some Mature Harappan types such as perforated jars, beakers, dishes-on-stand, etc. (Bhan, S. 1975). The bricks used for structures were in the ratio of 4:2:1, the actual size being 36 x 18 x 9 cm or 40 x 20 x 10 cm. In Period IIA the Mature Harappan elements were in much greater amount, though Siswal tradition still continued. The former included, besides beakers, perforated jars, etc., cubical weights of chert. The last period, II B, showed a decline in the material culture whether in terms of the structures or pottery or other artefacts.

Rakhigarhi, located in the same District Hissar wherein the afore-mentioned sites of Banawali and Siswal are situated, has a highly impressive mound which cries for large-scale excavation. Harappan remains are there right

on the surface and it is not unlikely that the lowest levels may reveal the Kalibangan I complex and may also throw light on an evolution from the latter to the former. Anyway, within half a kilometre from Rakhigarhi is yet another site, known as Arada, which has a cultural deposit of 3 m, most of it being of Kalibangan I complex. And for that period, its size, viz. 300 m square, is no less impressive (*IAR 1987-88*: 27).

Before concluding this write-up on the pre-Mature Harappan scenario in Haryana one must refer to the latest discovery in the region. At a site called Kunal in District Hissar, not only has the pre-Mature Harappan pottery (pl. IVB) been found in ample measure, but there is an extraordinary yield of a variety of ornaments in gold and silver (Khatri and Acharya 1995). These include spiral bangles, 'crowns' and discular bead with axial perforation—all of silver (pls. IIB, VA and VB respectively) and over twelve thousand beads variously of carnelian, agate, lapis lazuli, steatite and shell. All these speak volumes for the affluence of the people even in the pre-Mature Harappan times. Trade must have played a significant role in this, since neither lapis lazuli nor silver are locally available. In the context of trade, one might note the occurrence of seven seals, six of steatite and one of shell. These seals do bear motifs, mostly geometric, but no inscription, which seems to have been a Mature Harappan feature. However, it needs to be added that the site did not yield any Mature Harappan remains.

Three radiocarbon dates are also available for this site, as given in the Table at the foot of this page. These dates clearly place the pre-Mature Harappan occupation at Kunal in the first half of the third millennium BC.

Let us now have a brief look at the situation in the southern domain of the Harappan Civilization. At Dholavira in Kutch, the lowest 60-70-cm thick deposit has yielded pottery some of which is different from the Mature Harappan. In these levels there is also ample evidence of copper-working. Further, a well established settlement is indicated by the presence of structures, of which, incidentally, the bricks were in the ratio of 4:2:1, the actual measurements being 36 x 18 x 9 cm (Bisht 1991). At Lothal in the riverine plains, sherds of micaceous red and black-and-red wares have been found in the lowest deposits — both of which are un-Harappan, thereby pointing to an indigenous element (Rao 1979). Some of the radiocarbon dates for Rojdi in central Saurashtra (Possehl 1990: 44) take it before the middle of the third millennium BC about which time the Mature Harappan Civilization seems to have spread out its wings. In the western coastal area, Prabhas Patan (Somnath) has yielded the remains of what has been termed as the 'Pre-Prabhas Culture' which, on the basis of radiocarbon dates, viz. 2911 BC and 2892 BC,

SAMPLE No.	5568 BP	5730 BC	CALIB-3 BC
BETA-77727	4250±130	2430±135	1 Sigma 3016 (2884) 2621
			2 Sigma 3304 (2884) 2471
BETA-77726	4040±70	2210±70	1 Sigma 2837 (2568,2519,2504) 2466
			2 Sigma 2869 (2568,2519,2504) 2361
BETA-77728	3990±70	2160±70	1 Sigma 2577 (2473) 2409
			2 Sigma 2854 (2473) 2288

seems to have antedated the Mature Harappan (Possehl 1990:41). Padri, in Bhavnagar District, too seems to have had a pretty early beginning, as indicated by two radiocarbon dates, viz. 3048 BC and 3680 BC (calibrated; respectively nos. PRL-1785 and PRL-1787; information from Shri Vasant Shinde, and his papers 1992a and 1992b; see also Sonawane and Ajithprasad 1994). Yet another noteworthy site in Gujarat to have yielded pre-Harappan remains is Nagwada (pl. IIIB). However, much more evidence than what is available at present is needed to get a detailed picture of a well-defined pre-Mature Harappan culture(s?) in this region.

We may now turn our attention to the still-debated question, viz. when and how did the Mature Harappan Civilization emerge? While we shall deal later in greater detail with the 'when' part of the question (Chapter XIII), here it may suffice to say that, though there was a relatively long period of infancy and adolescence — from about the middle of the fourth millennium BC, the actual adulthood of the civilization came about within a short period of a century or so, between say 2600 and 2500 BC. This time-limit has been computed on the basis of radiocarbon dates on the one hand and trade-contacts of the Harappan Civilization with closely dated civilizations of West Asia on the other (Lal 1994).

With the excavation-data now available from so many sites containing both the Formative and Mature Harappan remains, as discussed in the preceding pages, it seems possible now to answer the query 'how' to a reasonable extent. In this context, it may be recalled that at its maturity the Harappan Civilization was characterized, amongst others, by the following features: (i) systematic town-planning; (ii) orientation of the houses generally along the cardinal directions; (iii) provision of a system of fortification; (iv) division of the settlement usually into two parts, viz. a 'Citadel' and a 'Lower Town'; (v) use of bricks having a set ratio of their length, breadth and thickness, viz. 4:2:1, and (vi) their having been also fired in a kiln; (vii) monumental public buildings like granary, assembly hall, bath, etc.; (viii) well laid-out drainage system; (ix) red ware with certain specific forms like S-shaped jars, tall perforated jars, flanged vessels, beakers, etc. and (x) certain painted designs like pipal-leaves, banana-leaves, fish-scales, intersecting circles, etc.; (xi) terracotta triangular and other types of 'cakes'; (xii) etched carnelian beads and faience bangles, etc.; (xiii) a system of weights and (xiv) measures; (xv) typical seals and sealings; (xvi) long-distance trade; (xvii) a distinctive script; and (xviii) certain types of statuary in metal and stone. The best way to ascertain the story of the emergence of the Mature Harappan Civilization would, therefore, be to look for the roots of the aforementioned features. And the same will now be attempted.

At one point of time it was believed that the Harappan Civilization had its roots in the preceding civilizations of western Asia. It appears that this view was taken mainly because at that stage of our knowledge of the prehistory and protohistory of the Indian subcontinent there was little evidence on the home soil of the cultural *milieu* that preceded the Harappan Civilization. In the then circumstances, therefore, the idea of West Asian influence on the rise of the Harappan Civilization may have been partly justified. But even later on when the evidence of a mass of material immediately preceding this civilization began to turn up, the supporters of the West Asian-origin theory took shelter under the cover that 'ideas have wings' and thus, according to that view, if not the various elements constituting the Harappan Civilization at least the very 'idea' of civilization was an import. All these theories do not have any validity now since, as we shall analyse presently, there is a clear case for the emergence

of the Harappan Civilization right on the soil of the Indo-Pakistan subcontinent. In presenting this analysis, it is but natural to refer back to some of the salient features from various pre-Harappan sites, already discussed in the previous pages.

As mentioned earlier, Fairservis' work at Kile Ghul Mohammad in Baluchistan had given an inkling of a cultural *milieu* in which mere hunting and foraging as means of subsistence had been supplemented, if not totally supplanted, by animal husbandry (domestication of the sheep, goat and cattle). The small-scale excavation did not yield any positive evidence regarding the domestication of plants, but that this may have been achieved cannot be altogether ruled out. Anyway, the purely nomadic stage seems to have come to a close, or at least reduced considerably, since there was evidence of semi-permanent structures of wattle-and-daub. On the basis of radiocarbon data, this stage is assignable to ca. sixth millennium BC. With that as the base, an evolution continued and in the next stage there was the evidence of pottery as well, first handmade and plain and then wheel-turned and painted; and, as time passed, metal also made its appearance.

This rather sketchy picture of the evolution gleaned from Kile Ghul Mohammad has since been not only reconfirmed by the evidence from Mehrgarh but also much amplified and taken forward in a number of ways. The lowest occupation at this site (IA) was pre-pottery neolithic. This was followed by IB which yielded not only a handmade coarse ware but also ample evidence of domestication of the cattle, sheep and goat, as also of cultivated cereals which included three varieties of wheat and two of barley. These neolithic folks lived in mud-brick houses and it is interesting to note that their bricks had the same ratio of length, breadth and thickness, viz. 4:2:1, as met with during the Harappan times. The people buried their dead in graves and amongst the finds therefrom were beads of turquoise and lapis lazuli and other ornaments of seashell. The raw material for all these, being not available locally, points to long-distance trade, which, incidentally also implies an organizational set-up. There are enough radiocarbon dates to show that the neolithic settlement at Mehrgarh may well go back to the sixth-seventh millennia BC, antedating the Harappan Civilization by not less than three millennia.

As time passed, in Period IIC a wheel-made painted black-on-red ware made its appearance and so also did copper. But what is more interesting is the occurrence of *Hordeum sphaerococcum* — a variety of barley which requires irrigation. Also noteworthy was the presence of cotton-seeds. It is not unlikely that it may have been used for textile of which some traces had been found on the bones in a grave of Period I. Amongst the structures of Period II there was a compartmented one which may have been a granary. All these technical and organizational advances, it may be emphasized, are datable approximately to the second half of the fifth millennium BC.

By Period III the size of the settlement also grew up considerably and an all-round vibrancy was reflected in the variety of the painted designs. The occurrence of drill-bits for the manufacture of beads and of ingots of copper and crucibles points to specialization in the respective fields, which in the course of time may have led to the emergence of hereditary craftsmen — a situation perhaps ultimately resulting in social stratification. Further, these particular types of drills continued to be used through the pre-Harappan levels of Amri on to the Mature Harappan ones. Belonging to this period there were two large-sized compartmented structures which, for all one can say, may have been public granaries, anticipating the granaries of Harappa and Mohenjo-daro. Though the plans in all

these cases are not identical — in fact, even the ones at Harappa and Mohenjo-daro are not similar, the concept of public granaries seems to have originated as far back as the beginning of the fourth millennium BC. And, incidentally, this also points to a public-management authority, be it a chieftain or a corporate agency.

In Period IV was found the evidence of seals of terracotta and bone. Though doubtless these were not the same as the Harappan ones, yet it is important to note that the concept of using seals had been born. The time seems to have been somewhere between 3500 and 3000 BC. Likewise, in this period there is also evidence of graffiti on pottery. These continue through subsequent periods and, as discussed elsewhere (Lal 1992), may have given rise to the signs in the Harappan script.

While no remains of the Harappan times occurred at Mehrgarh, the same were met with at the neighbouring site of Nausharo. The first occupation over here goes back to the beginning of the third millennium BC. Of the four of its subperiods (IA-D), the uppermost, viz. ID, represents a stage of transition towards the Harappan. In it there occurred many pottery shapes and painted (such as fish-scale, humped bull, pipal-tree) and incised (e.g. thumbnail) motifs which continue into the Harappan times. Structure-wise, large-sized mud-brick platforms, so characteristic of the Harappan Civilization, also occurred. One may also point to the occurrence of steatite and lapis lazuli beads and a bronze mirror. In continuation, Period II, as expected, was typically Mature Harappan.

Situated in a similar west-of-the Indus submontane location, Gumla and Rehman Dheri have also a good deal to contribute to our discussion relating to the antecedental stages of the Harappan Civilization. For example, Period III at Gumla, dating back to the first quarter of the third millennium BC, yielded such pottery types as dishes-on-stand and vessels with a flanged rim, which later on became characteristically Harappan. Also to be specifically noted is that in this period a sense of town-planning had emerged, as indicated by the north-south orientation of the houses. Besides, even the typical Harappan ratio used in the mud bricks, viz. 4:2:1, had also come into being.

Period I of Rehman Dheri, assignable to ca. 3000 BC, has yielded graffiti-marks which, as stated earlier, may have contributed to the Harappan signary. Then there is also the evidence of the use of seals. Period II yielded not only typical Kot Dijian pottery but also certain characteristically Harappan motifs such as the pipal-leaf, fish-scale, intersecting circles, etc. Although the evidence is not categorical, it seems that a 19-m long wall may have been part of a system of fortifications. In Period III, with a continuum in the cultural *milieu*, there was a progressive increase of Harappan traits. The story appears to have continued at Hissam Dheri, a nearby site, where a good deal of typically Harappan material has turned up.

The inkling of a transition from an antecedent cultural *milieu* to the Harappan Civilization given by the above-mentioned west-of-the-Indus sites is not only supported but also further amplified by a series of sites in the basins of the Indus and Ghaggar and their tributaries. Of these, we shall refer back to the following: Amri and Kot Diji in the lower Indus valley; Jalilpur and Harappa in the middle Indus; and Kalibangan, Banawali and Kunal in the Ghaggar-Sarasvatī valley.

Period II at Amri lay between the Amri and Harappa Cultures. In it there were certain elements which are otherwise typically Harappan. In fact, some of the painted designs on pottery go back even to the Amrian times, viz. ca. 3500 BC. Thus, for example, the chess-board pattern made its appearance as early as Period IA and continued into IB and IC and,

of course, later. The fish-scale motif could be seen in ID. The pipal-leaf came up in IIA. In IIB was noted the intersecting circle motif. In it there also appeared three typical Harappan pot-forms, viz. ring-stands, perforated jars and basins with a flat bottom, slightly concave sides and flanged rim to hold the lid. Above all, one might add that amongst the graffiti which started appearing as early as Period IA, there are some that remind us of the signs in the Harappan script.

Period I of Kot Diji, the beginning of which goes back to ca. 3000 BC and which was followed by the Mature Harappan, yielded chert blades, terracotta 'cakes', vessels with flanged rim and, amongst the painted designs, the fish-scale, intersecting circles and 'horned deity'. The orientation of the houses along the cardinal directions suggests the planning of the settlement, which, it needs to be emphasized, was also fortified. The bricks too were manufactured in the typical Harappan ratio of 4:2:1.

Jalilpur II, which is of the same vintage as Kot Diji I, has yielded flanged vessels, terracotta toy-carts, 'cakes' and humped bulls, chert blades and faience bangles. The site did not continue up to the Harappan times and thus the presence of the above-mentioned items becomes all the more significant. However, it is at Harappa itself that a transition from the Kot Dijian cultural *milieu* to the Mature Harappan is witnessed. Thus, in Period I at Harappa, which is comparable to Kot Diji I, certain Harappan characteristics such as the cardinal orientation of the buildings, 4:2:1 ratio of the mud-bricks, flanged pottery vessels and rows of painted loops later developing into the fish-scale motif were noticed. An over 15-m long and 2-m wide wall, met with in Period II, may have been, for all one can say, part of a fortification wall. From this period also came terracotta 'cakes'. Without any break, the occupation continued into Period III which presented the Harappan Culture at its maturity.

In the Cholistan region of the Ghaggar (Hakra) valley no excavation has been done, though many sites ranging in antiquity from a stage that antedated even the Kot Dijian Culture to that of the Painted Grey Ware times have been found. Thus, it is difficult to demonstrate a transition by means of a sequential superimposition of cultures.

Kalibangan, further up the Ghaggar, has produced evidence of a cardinally oriented and fortified settlement in levels well before the Mature Harappan times. The houses consisted of a courtyard around which were located the various rooms — a pattern which continued into the Harappan times. Although no agricultural field of the Mature Harappan times has been exposed anywhere, there is every reason to suppose that it followed the same gridiron pattern of furrows as was found in the field ascribable to the pre-Harappan times (since, as stated earlier, the pattern is in vogue even today in northern Rajasthan, Haryana, etc.). As regards pottery, Fabric C of Kalibangan, with its well-levigated clay, good firing, red to plum slip and certain forms well anticipated the Harappan pottery. One also notices quite a few painted designs such as fish-scales, banana-leaves, etc. and pot-forms like flanged vessels, tall cylindrical jars (though without perforation), dishes- and cups-on-stand, which are the forerunners of their Mature Harappan counterparts.

At Banawali, the picture of a transition from the formative cultural *milieu* to the Mature Harappan is much clearer. Right from the beginning (Subperiod IA), the inhabitants oriented their houses along the cardinal directions. A little later (in Subperiod IB) came up the fortification-wall as well. And what is more noteworthy is that during Subperiod IC the concept of a dichotomous layout, involving a 'Citadel' and a 'Lower Town', also came into being. Also to be

noted is the occurrence of a stone weight in the pre-Mature Harappan levels.

From the foregoing analysis it would be seen that the northwestern part of the Indo-Pakistan subcontinent witnessed a cultural development right from the neolithic times, with many currents and cross-currents operating within the area. There may be a few odd lacunae here and there, but these are likely to be filled in as more fieldwork is undertaken in the prospective areas. In any case, it is now abundantly clear that from about the close of the fourth millennium BC there came into being a cultural stage — designated variously as Kot Diji I or Kalibangan I or even Sothi Culture, which had many of the elements that subsequently went into the making of the Mature Harappan Civilization. To compare with the Mature Harappan characteristic features outlined earlier, this preceding culture has yielded evidence of: (i) town-planning; (ii) north-south orientation of houses; (iii) fortification around the settlement; (iv) even the concept of a 'Citadel' and a 'Lower Town'; (v) use of bricks in the ratio of 4:2:1 and (vi) their having been fired sometimes in a kiln; (vii) construction of granaries, though admittedly not on such a big scale as those at Mohenjo-daro or Harappa. (viii) In these preceding levels, however, a public drainage system was wanting. (ix) In the pottery-repertoire, there are certain forms, like flanged vessels, tall cylindrical vases, sometimes even perforated (as in Amri ID), flat and flanged 'bread containers', dishes- and cups-on-stand, ring-stands, etc. which continue in the Mature Harappan times. (x) Similar is the case with certain painted motifs, viz. pipal-leaf, banana-leaf, intersecting circles, hatched triangles, fish-scales, peacocks, etc. (xi) Triangular terracotta 'cakes' are also associated with this preceding culture, though not in a big way. (xii) Disc-beads of paste and those of carnelian are also present, though the typical etched carnelian ones had not yet been manufactured. (xiii) This preceding culture has so far yielded only a single example of weight (Banawali IC). (xiv) However, there is no evidence of any kind of scale. All this might suggest that systems of weights and measures in a big way had yet to come up. (xv) The concept of using seals had been there for a very long time, though the typology was not characteristically Harappan. (xvi) In any case, trade-activities, though largely within the 'home zone', are indicated by the occurrence of non-locally available materials like lapis lazuli, carnelian, seashell and even copper at many of these Kot Diji I/Kalibangan I sites. (xvii) As regards the script, all that can be said in the present state of our knowledge is that these preceding people did scratch/paint some graffiti on their pottery, which are morphologically similar to many of the signs used in the Harappan script. But whether the pre-Mature Harappan signs had any phonetic values attached to them cannot be said with certainty. (xviii) The pre-Mature Harappan cultures have very little to offer by way of metal and bronze statuary.

The emergent picture thus seems to be that the Kot Diji I-Kalibangan I culture-complex, which was well established in the first quarter of the third millennium BC, lay at the base of the Mature Harappa Culture and clearly represents its formative stage. In terms of expanse, it needs to be emphasized that from Kot Diji in the southwest to Banawali in the northeast it is a distance of 750 km. Again, from Kot Diji to Rehman Dheri in the northwest it measures 550 km and from Rehman Dheri to Banawali it is also about 550 km. Indeed, the area covered by this formative Harappan culture-complex was almost as much as that occupied by the Mature Harappa Culture itself in the Indus-Ghaggar valleys.

What seems to have happened is that around 2600-2500 BC there was a great spurt

not only in internal but also in external trade. It must have necessitated the installation of a system of weights for weighing goods that were purchased in local markets and sent out. Likewise, a system of measuring lengths was found necessary in respect of commodities like cloth, etc. No less called for was the introduction of a system of writing for keeping records of transactions and for long-distance communication. The manufacture of seals, bearing in all likelihood the owner's or sender's name, was yet another must, since the packages sent out ought to be duly stamped with a seal of authority. And it is precisely these very features — weights, measures, a script and seals — that stand out as the most significant differentiae between the Formative and Mature stages of the Harappan Civilization. In the boosting of the trade, besides individual merchants and guilds, the State too must have played a significant role.

Obviously, the boost in trade led to economic abundance. This, combined with a gearing up of the administrative machinery, resulted in an all-round upliftment in the standards of living and civic amenities — reflected variously in better town-planning, in a public system of drainage and in the construction of monumental buildings, etc. The emergent elite class must have asserted itself and patronized sculptural art in stone as well as bronze. The ladies must have put in a demand for sophisticated jewellery. The inevitable finale was — the grand Mature Harappan Civilization.

Where exactly, within the Kot Diji-Rehman Dheri-Banawali triangle already referred to, did this Mature Harappan 'revolution' take place? This is not an easy question to answer in the present state of our knowledge. Nevertheless certain propositions can be made and discussed.

In the first place, it must be noted that there is a very small number of the Formative or Early Harappan (i.e. Kot Diji-related) as well as Mature Harappan sites west of the Indus. The submontane region, therefore, can easily be ruled out as having been the venue of this 'revolution'.

Again, in the valley of the Indus proper and in those of its principal tributaries, viz. the Jhelum, Chenab and Ravi, the number of sites is much smaller — 44 in Sindh and 6 in Pakistani Panjab (Misra 1993) — as compared to the enormous number of such sites in the valleys of the Ghaggar and its tributaries of which the Sarasvatī was an important one. (In fact, it has been suggested by many scholars that in ancient times the main river of this complex went by the name of Sarasvatī.) By 1984, Joshi and his colleagues had plotted 137 Early Harappan and 109 Mature Harappan sites in the Ghaggar-Sarasvatī drainage on the Indian side of the border. On the same river further down in Pakistan, Mughal plotted 40 Early Harappan and 174 Mature Harappan sites in Cholistan. This makes a total of 177 Early Harappan and 283 Mature Harappan sites in the Ghaggar-Sarasvatī valley. The figures exclude sites of the Hakra Ware in Cholistan, which preceded the Early Harappan.

Thus in all likelihood it was in the Ghaggar-Sarasvatī valley and in the adjacent Ravi and lower Indus valleys that the Mature Harappan 'revolution' took place. In this context, it may be added that, while no detailed survey of the actual sizes of the sites on the Indian side of the border has been made, two of the Early Harappan sites explored by Mughal in Cholistan, viz. Jalwali and Gamanwala, measure as much as 22.5 and 27.3 hectares respectively. This suggests that in this valley even during the Early Harappan times large towns had begun to come up — a feature which may have given rise to still bigger settlements, viz. the cities. Indeed, in this very region, Ganweriwala, a Mature Harappan settlement covers no less than 81.3 hectares, and, although actual

measurements are not available further upstream, one cannot lose sight of another very big settlement, viz. Rakhi Garhi in District Hissar, Haryana.

There is yet another aspect of the issue which deserves consideration. At Kot Diji, the excavations brought to light, between the Kot Dijian and Mature Harappan levels, a layer of ash, burnt earth, charcoal, etc., signifying conflagration. West of the Indus, Nausharo has produced evidence of the burning of the structures of Period ID which preceded the Mature Harappan occupation (Period II). Similar burning is attested to at Gumla between the Kot Diji-related Period III and the Mature Harappan Period IV. At Rana Ghundai there is evidence of burning at the end of Period III which is of the same vintage as Kot Diji I. Though there is no evidence of occupation by the Mature Harappans at Rana Ghundai itself, yet not far from it is Dabarkot, which is a big station of the Mature Harappans.

While it is doubtless risky to hazard a guess about this phenomenon of conflagration at so many sites west of the Indus or hugging its lower valley on the east, the total absence of such a feature in the Ghaggar-Sarasvatī and Ravi valleys does set one thinking. Can it be that when the Mature Harappan revolution took place in these valleys and in the areas that lay close by on the north and west, the uprising Mature Harappans, in order to make their supremacy felt, overran the areas to the west? At play must have also been jurisdictional and political overtones. But of these we know precious little.

It is now abundantly clear that one need not look any longer to West Asia for finding the 'roots' of or even inspiration for this great civilization of South Asia. This region itself has given ample proof of its infancy, adolescence and maturity.

POSTSCRIPT

In May 1996, while the book was still in the press, Professor Richard Meadow and Dr. Mark Kenoyer visited Delhi and delivered a lecture on their latest discoveries at Harappa. Excavations in the rain-gully in the northern part of Mound AB where Wheeler indicated the existence of a gateway (fig. 6.5), they have discovered a 3-4 m thick deposit of Period I in which the pottery is essentially handmade. It is a red ware bearing designs in black pigment, often with the addition of white. The motifs include the intersecting circle which becomes subsequently a characteristic feature of the Mature Harappan. The houses are oriented north-south and east-west and the bricks too have a set ratio of 4:2:1. There are micro-beads of glazed steatite, copper objects, bone tools and blades made from Baluchistan chert. Long-distance contact (trade) is further indicated by the presence of marine shells from Makran coast. Though no radiocarbon dates are yet available for this period, it is certain to take the story back to the fourth millennium BC, if not earlier.

In the succeeding Period II, which is still pre-Mature Harappan, have been found, amongst other objects, potsherds bearing post-firing graffiti which include a few signs of the Mature Harappan script, such as the V-like sign with lateral strokes at the top, and the bow-and-arrow. In this period the use of white as an additional colour for pottery-painting is reduced and the fabric also becomes sturdy resembling the Mature Harappan.

The foregoing fresh evidence thus reaffirms the case for an indigenous growth of the Harappan Civilization, the roots going back to ca. 4000 BC.

PART II

THE CIVILIZATION AT ITS MATURITY

V

AN OVERVIEW

Before going into the details of the various aspects of the Mature Harappan Civilization it may perhaps be desirable to have an overview. In doing so there is bound to be a lot of repetition of what has been stated earlier. Also, a good deal of what is going to be stated in the following chapters will have to be anticipated here. However, all this seems to be necessary, since one would like to have a composite picture of this civilization as a whole before going into its nuances.

In the first place, it may be recalled that the Harappan Civilization covered an area much larger than did any of its contemporaries, be it the civilization of the Nile valley in Egypt or of the Tigris-Euphrates valleys in Mesopotamia. As already mentioned, from the westernmost known station of this civilization, viz. Sutkagen Dor in Baluchistan (Pakistan) to the easternmost post, viz. Alamgirpur in the upper Gaṅgā-Yamunā *Doāb* in Uttar Pradesh (India) it is a distance of over 1600 kilometres. Likewise, the northernmost site of Manda, in Jammu and Kashmir, is 1400 kilometres away from the southernmost site of Daimabad in Maharashtra.

The most outstanding feature of this civilization was its town-planning: well-regulated streets, oriented almost invariably along the cardinal directions, thus forming a gridiron pattern. It has also been noted, for example at Kalibangan, that even the widths of these streets were in a set ratio, i.e. if the narrowest lane was one unit in width, the other streets were twice, thrice and so on. In this context it may not be out of place to mention that such a town-planning was unknown in contemporary West Asia. Further, the civic control at these Harappan sites was such that during the heydays of the civilization no encroachment on the streets was to be seen. At Mohenjo-daro, an underground system of drainage was provided in the streets and there were cesspits at intervals from which the sullage could be removed regularly. Though the drainage system was not so elaborate at other places, yet there was provision of soakage jars outside the houses, which must have been cleaned up from time to time.

The houses were made of either mud bricks or of kiln-fired bricks. For example, while sites like Kalibangan or Lothal show the use of mud bricks for house-walls and of kiln-fired bricks for drains, wells and bathing pavements, at Mohenjo-daro kiln-fired bricks were used almost all through. The size of the Harappan bricks was also regulated, being in a set ratio of 4:2:1 (length, breadth and thick-

ness). However, the actual sizes could vary. Thus, for example, it has been noted at Kalibangan that whereas in the construction of the houses the brick-size used was 30 x 15 x 7.5 cm, in the fortification walls it was 40 x 20 x 10 cm.

In regions where stone was available in plenty, the same was used, for example, at Surkotada and Dholavira in Kutch. Here it would be interesting to mention that at the latter site polished stone pillars, made up in parts, were also used — a unique feature in the Harappan architecture itself.

An average Harappan house consisted of a courtyard around which were set, on three sides, the rooms meant variously for living, storage, etc., the fourth side providing the entrance. Cooking was done either in one of the rooms or in a corner of the courtyard. Those who had the cattle or a bullock-cart kept them also in the courtyard. The bigger houses, however, were very elaborate and had a much larger number of rooms. The presence of staircases suggests that some of the houses had more than a single storey. There is also evidence of a latrine and a separate bathing place in certain houses. However, the tenements of the workmen, as evidenced at Harappa, were small, comprising two small rooms, one behind the other. These houses were constructed in a group, in the style of the present-day barracks.

Fortifying the settlement seems to have been a common feature, at least at the urban centres. Whether it was a defence-need or had become just a 'style' cannot be definitely said, since there is not much evidence of warfare equipment — such as swords, shields, armours, etc. in the Harappan repertoire. Anyway, an urban centre was conceived of in two parts, which have been called a 'Citadel' and a 'Lower Town'. Without disputing this terminology for the time being, it may be added that an attempt was made to fortify both the units. Thus, Wheeler for the first time demonstrated that Mound AB at Harappa was fortified by a thick mud-brick wall, and he designated it as the 'Citadel'. The recent work by Dales, Meadow and Kenoyer indicates that the 'Lower Town' (Mound F) too was fortified. The evidence from Kalibangan is also very clear on this issue. Here both the Citadel and the Lower Town were duly fortified. At Banawali the position was slightly different. Although the Citadel and the Lower Town were both fortified, the former lay within an overall outer wall enclosing the latter. At Surkotada, the two units, viz. the Citadel and the Lower Town, were juxtaposed, there being a common wall between them. Dholavira had yet another kind of layout. Within the outermost enclosure wall, there lay the Lower Town, the Middle Town and the Citadel, the latter two also having their own fortification-walls. At Lothal, on the other hand, the Citadel or the Acropolis, as called by the excavator, lay within the overall fortification-wall of the general settlement; the Citadel did not have a fortification-wall of its own. Nevertheless, it had its identity, having been located on a high platform and separated from the rest of the settlement. It would thus be seen that the planning of the Indus settlements, though standardized in a way, was not monotonously the same all over.

The Harappan Civilization has also to be noted for its monumental buildings. The Great Bath, Granary and the Assembly Hall are amongst the noteworthy buildings at Mohenjo-daro. The Great Granary at Harappa is, again, a unique grain-storage facility. At Kalibangan, what is noteworthy is the layout of the Citadel. It was divided into two halves by an east-west partition-wall. Of these, the southern half had a series of platforms separated one from the other as also from the surrounding fortification-wall. While the upper parts of most of the platforms have been eroded because of rains over the millennia, at least on the top of two platforms some structural activity throwing light on religious prac-

tices was noticed. In one case there was a series of 'fire-altars' and in another a sacrificial pit. In the northern half of the Citadel there were residential houses, occupied most likely by the priests who looked after the complex. Lothal, situated not far from the Gulf of Cambay (an inlet of the Arabian Sea) and connected with it through a series of rivers and their tributaries, has given to the Harappan Civilization a dockyard which seems to be the earliest dockyard known to humanity. The laden boats could come up along the rivers, riding high tides. These remained parked in the dockyard unloading and loading commodities, and then returned to the sea with the next available receding tide. Close by there was a warehouse where incoming and outgoing goods could be temporarily stored. In between the dockyard and the warehouse there was the Acropolis whose occupants, it may be presumed, kept an overall eye on these activities.

The mainstay of the Harappan economy seems to have been agriculture and the main crops were wheat and barley. Hulas in the upper Gaṅgā-Yamunā *Doāb* has yielded evidence of rice, but that is in a late context. Rice-husk has also been reported from Lothal in Gujarat. Millets are reported from Lothal as well as from Rojdi. At the latter site at least six varieties have been recognized. It is thus clear that there were regional variations in agricultural produce. But what is most interesting is that the Harappans produced cotton as well — an item that does not seem to have been produced by other contemporaries.

Kalibangan Period I, which is earlier than the Mature Harappan stage, has given the evidence of an agricultural field. The furrows formed a grid pattern, one set running east-west and the other north-south. It is interesting to note that this kind of field-ploughing is prevalent even now in northeastern Rajasthan, Haryana, Panjab and western Uttar Pradesh. The crops grown are mustard and horse gram. It is most likely that the same pattern was followed in the Harappan days. Terracotta models of the plough show the type used by the Harappans. That the agriculture produce was plentiful is indicated by the large-sized granaries identified at Mohenjo-daro and Harappa. Amongst the fruit-crops there is the evidence of melons, bananas, dates and grapes.

Both humped and humpless cattle were domesticated. They were evidently used for ploughing the fields and drawing carts. It is interesting to note that even now in Sindh the same types of carts are used as were in vogue during the Harappan times and what is more exciting is that their gauge is the same as has been revealed in the excavations at Harappa. Amongst the other domesticated animals mention may be made of the goat, sheep, pig, buffalo, elephant and even camel. Some of the sites, e.g. Surkotada, Lothal, etc. have yielded evidence of the horse, though one would like to have still more evidence in this regard. Dogs, cats, monkeys, parrots, etc. are also attested to. Besides cereals, meat was a part of the diet, and the sheep, goat, pig, fowl and fish provided the non-vegetarian component of the food. To these were added some wild animals like the hog deer, spotted deer, *bārāsinghā*, *sāmbhar*, etc.

But agriculture and animal-husbandry were not the only bases of the Harappan economy. There is ample evidence of a variety of crafts and small-scale industries. For example, bead-making was an important industry. Of it at least two major centres have been identified, viz. Chanhu-daro in Sind and Lothal in Gujarat. At both places workshops have been discovered where, besides the raw material, beads in various stages of preparation, drills, kilns, etc. have also been met with. The material used comprised, in various degrees, carnelian, agate, jasper, onyx, chalcedony, amethyst, turquoise, lapis lazuli, etc. While most of the raw material was available

locally or within a reasonable distance from the production-centre, some had to be obtained from far off places. Turquoise may have come from Turkmenia in Central Asia and lapis lazuli from northern Afghanistan where a Harappan outpost, viz. Shortughai, has been duly identified. The beads, in particular the etched carnelian ones, were an item of export, as attested to by their discovery at many sites, like Ur, Tell Asmar, Kish, etc., in Western Asia.

Shell-working was another flourishing industry. Sites close to, or not very far from, the sea have yielded evidence of the manufacture of shell objects. Balakot and Lothal are amongst such sites. Of this material a variety of ornaments were made: pendants, rings, bracelets, inlays, beads, etc. There were other objects too, such as bowls, ladles and gamesmen. From the manufacturing centres shell objects were traded out not only to various parts within the Harappan Civilization zone but also abroad.

Manufacture of copper objects seems to have been practised at most of the urban centres, where copper ingots as well as copper-smelting furnaces have been met with. The objects had a very wide range: from domestic kit like nails, razors, mirrors, knives, celts, sickles, drills, awls, needles, etc. and hunting equipment like arrowheads, spearheads, etc. to objet d'art like the famous dancing girl of Mohenjo-daro. Tin was an important alloy of copper, thus producing a good grade bronze. Other metals worked in were gold, silver, lead, etc. Gold ornaments, plain and sometimes inlaid, were a favourite. In this context it may be well worth mentioning that discular beads with axial perforation, typically Harappan in character, have been found in Mesopotamia.

In terms of stone sculptures, the Harappan Civilization has nothing to offer to match those of Egypt or Western Asia, but in their own way the few sculptures found at the Harappan sites do credit to the artists. In this context one may note the so-called priest-king from Mohenjo-daro and a dancing figure and another with a naturalistic delineation of stout body from Harappa. But when it comes to seal-engraving, the Harappans excelled all their contemporaries. Made of steatite and usually squarish in shape with a perforated knob on the reverse, the seals depict a variety of animals above which are short inscriptions in a monumental script. The engravings have been very meticulously executed: any artist of any time or region would be proud to be called the author of the majestic bull with a well-proportioned body, prominent hump, large swinging dewlap and forceful face.

The Harappan ceramics were both sturdy and elegant. Made of well-levigated clay, these were well fired, often had a red slip and were painted in black pigment with geometric, floral and faunal designs. The S-shaped jars with a richly painted body or the tall dishes-on-stand or cups-on-stand are indeed a treat to the eye. The other types included storage jars, water pitchers, ring-stands, goblets, dishes, bowls, etc., to meet all kinds of daily needs of the people.

Trade, both internal as well as external, involved a lot of mechanism. Some of the above-mentioned seals were used for sealing commodities that were to be sent out. This is indicated by the discovery of lumps of clay with the impressions of the seals on one side and of cloth and reeds on the other. Indeed, the warehouse at Lothal yielded as many as sixtyfive sealings with such impressions.

For weighing commodities a system of weights was used. Made of chert and usually cubical in shape, the weights fell in a binary system. While the tiny ones were evidently used for weighing precious commodities, with the bigger ones must have been weighed grains and similarly heavy commodities. There is evidence of linear measurement too. Scales, made variously of shell, ivory, bronze,

etc., have been found at Mohenjo-daro, Harappa, Lothal and Kalibangan. These are graduated, but since in most cases they are broken it is somewhat difficult to work out a fixed uniform pattern.

A system of writing was yet another necessity for carrying on large-scale trade. Records had to be maintained, and administrative work also needed a script. The Harappan script is monumental and graceful. Various views have been expressed about its nature. According to some, it was syllabic, while some others think that it had reached the alphabetic stage. However, it is generally believed that it had about 400 signs. If that be so, the script may have been logo-syllabic to syllabic. The direction of writing, as has now been established, was from the right to the left. However, if an inscription ran into a second line, the latter was from the left to the right, i.e. in such cases the style was boustrophedon.

Nothing can be said with certainty about the language of the Harappan people. According to some scholars it was a Dravidian tongue, while others read in it the Sanskrit. However, the interesting point is that no two scholars within the same group — whether Dravidianists or Sanskritists — come to the same or similar reading of any given inscription. Obviously, they all seem to have faulted somewhere in their methodology. And indeed this is so, as discussed in Chapter IX.

Since the script remains undeciphered, it is dificult to be sure even of the subject-matter of many of the seals, except those that have very reasonably been associated with trade-mechanism. Some of the seals, however, seem to throw light on the religion of the Indus people. For example, it has been surmised that the figure surrounded by animals (pl. XIVA) depicts a kind of proto-Śiva in his Lord-of-Beasts (*Paśupati*) aspect. Some kind of Śaivite cult is also suggested by the occurrence of stone objects which have been thought to represent *liṅga*s (phallus) and *yoni*s (female organ). The terracotta figurines, sometimes shown with a child, have been taken to be Mother Goddesses. 'Fire-altars', found at Kalibangan, Banawali and Lothal suggest some kind of fire-associated ritual. Likewise, there is evidence of animal-sacrifice. Worship of trees, snakes, etc. also seems to have been a part of the Indus religion.

That the Indus people believed also in life after death is suggested by the nature of the goods that were placed in the graves. These included foodstuff in the form of the fowl, a variety of pots and pans, copper mirrors, ornaments, etc. The most common form of burial was to place the dead body on its back, extended, with the head towards the north. Sometimes a coffin was used and at others a brick-tumulus was erected over the grave — perhaps in both cases some one in particular was involved. At Lothal, in three of the graves two skeletons have been found. It has been conjectured that the practice of *satī* (the wife accompanying the husband in death) may have been involved. But, as matters stand, the identification of the sex in these cases remains debated. There was yet another kind of 'burial' in which the grave, circular on plan instead of the usually rectangular, had no skeletal remains, though the grave-goods were there as in the case of the rectangular ones. It was thought that some of the pots might contain ashes, indicating a post-cremation burial, but no ash or charred bones turned up. Indeed, more evidence is needed to arrive at some acceptable interpretation. Surkotada, in Kutch, has yielded yet another kind of burial. In a pit, just a few bones along with pottery have been found. The pit was covered with a stone slab and then a cairn of stone rubble was put up.

Do the above-mentioned different modes of burial represent regional variations? Or have they anything to do with different ethnic groups in the population? Only further research can answer the question. According to

Sewell and Guha (in Marshall 1931 : 638-44), the population of the Indus cities comprised all kinds of elements — Mediterraneans, Caucasoids, Armenoids, Alpines, Australoids and Mongoloids. Whereas the former four, by their very nomenclature, refer to regions from the west, the Australoids may have joined from Central India and the Mongoloids from the northern and northeastern hills. The population thus was cosmopolitan in its make-up.

There also seems to have been social stratification in the Indus population, if not on ethnic basis, at least on a functional one. The southern half of the Citadel at Kalibangan, as already stated, has yielded the remains of platforms with ritualistic structures over them. In the northern half there seem to have lived the priests who administered the rituals. The Lower Town at Kalibangan, as elsewhere, seems to have been occupied by those who were engaged either in agriculture or in trade or in both. The workmen's barracks at Harappa clearly indicate an underprivileged working class. Thus, there is evidence of a threefold social stratification: an at-the-top priestly class, an agriculturist-*cum*-merchant middle class, and a labour class at the lower rung of the ladder. Could this kind of stratification have given rise to later-day caste-system in India?

What kind of political set-up prevailed at the time of the Harappan Civilization, it is difficult to be sure of. An 'Indus Empire' is often talked about, implying that with its seat somewhere — Mohenjo-daro?, Harappa? — the emperor administered the entire area. But it is equally likely that there may have been several regional States, each with its own headquarters, like what obtained at the time of the Second Urbanization around the middle of the first millennium BC — the *Ṣoḍaśa Mahājanapadas* (the Sixteen States). The argument that a more or less uniform civilization covering a vast area must necessarily come under a single authority does not seem to be very valid, since cutting across the boundaries of the aforementioned Sixteen States it was an almost identical material culture — signified by the Northern Black Polished Ware, plain Grey Ware, punch-marked coins, cylindrical weights of jasper or chert, etc. — that encompassed the entire northern India.

The chronological horizon of the Harappan Civilization has been tossed backward and forward from time to time — from 3250-2750 BC on the one hand to 2500-1500 BC on the other. However, a closer scrutiny of the evidence suggests that the Harappan Civilization may have attained its maturity about the middle of the third millennium BC or perhaps a century earlier. It maintained that maturity till about 2000 BC. Thereafter a decay set in and before the end of the first quarter of the second millennium BC all the elements that constituted its maturity disappeared or degenerated. This dating is based, on the one hand, on a comparative study of the objects of the Mature Harappan type — seals, weights, etched carnelian beads, etc. — found in a datable context at various West Asian sites and, on the other, on the radiocarbon dates from the Harappan sites themselves. Interestingly, there is close corroboration between these two types of evidence.

Various causes have been adduced for the end of the Harappan Civilization. For quite some time it was held that the invading Aryans were responsible for its destruction. That theory has since been proved to be ill-founded. According to another theory, a sudden rise of land across the Indus, quite some distance downstream from Mohenjo-daro, produced a vast lake, submerging or flooding Indus settlements and thus dealing a death blow to the Harappan Civilization itself. Now, while Mohenjo-daro might have been subjected to flooding which may have caused its decline and subsequent abandonment, the

entire civilization cannot be said to have come to an end on account of inundation. Kalibangan, for example, has shown no signs of flooding. On the other hand, the drying up of the Ghaggar, perhaps on account of some tectonic movements upstream or in the Siwaliks/Lower Himalayas, seems to have brought about the desertion of the site. Thus, while certain individual sites may have ended up because of certain specific reasons, one has to look for other causes for the decline and end of this civilization as a whole.

In this context, if we have a look at the legacy of the Harappan Civilization we may perhaps be in a better position to analyse the causes of its decline. After the first quarter of the second millennium BC, the features that were never to be seen again included: the Harappan town-planning along with the system of fortifications; weights; measures; seals; sealings; rich bead and shell industries; and the monumental script, though some of its signs continued to struggle on for some time. On the other hand, what continued were: the criss-cross pattern of ploughing the fields; shape of the plough; shape and gauge of the bullock-cart; ladies' ornaments like multiple bangles, *chauk* (cone worn on the forehead), girdles, anklets, etc.; certain religious aspects like perhaps Saivism in some form, worship of natural elements and the like. A closer look at what did not survive and what did, would show that it were the urban components of this civilization that disappeared, whereas the rural ones connected with the life of the common people continued. The disappearance of items like weights, measures, seals, sealings and, to a great extent, writing shows that these were no longer needed. As we stated earlier, these items came up because these were needed to cope with the rise in trade, both internal and external, as well as for administrative purposes. It would thus appear that, more than anything else, it was a steep fall in trade, resulting in a great economic depression, and perhaps a breakdown of the politico-administrative set-up which may have put an irreversible nail on the coffin of such a prosperous civilization. Why and exactly how the trade collapsed would, however, still remain to be duly answered.

VI

MAJOR EXCAVATED SITES

Much though one would have liked to present a balanced picture of the rural as well as urban settlements of the Harappan Civilization, it is regretted that our knowledge of the former is very much limited since, with hardly a few exceptions, the emphasis has always been on the excavation of urban sites, evidently because of the temptation of achieving spectacular results. It has, however, to be remembered that these urban centres are few and far between — so far only about a score have been identified within the entire extent of this civilization. Maybe there are about the same number awaiting the explorer. But altogether it is clear that these urban centres did not by themselves fill in the vast panorama of that civilization. Each one of these Harappan cities must have depended for its food supplies, fuel, labour, etc. on a large number of neighbouring villages and, for all one can guess, the picture of the rural-urban mosaic in the Harappan days is unlikely to have been much different from what it has been throughout the early historical or medieval times in the country. Even now when industrialization is increasing by leaps and bounds and there is a constant shift of population from rural to urban areas, the cities represent but a small fraction of the total number of settlements in the country. Thus, in the present state of research on the Harappan settlement-pattern one has to be content with a rather one(urban)-sided picture of the Harappan times.

As has just been mentioned, only about a score of Harappan cities have been identified. Of these, about a dozen have largely or partly been excavated. Since we cannot go here into a detailed description of all these sites we select only the following nine, partly because these have been more extensively excavated and partly because of the fact that they lie in different ecological zones: (i) Mohenjo-daro and (ii) Chanhu-daro, in the lower Indus basin; (iii) Harappa, in the northern zone of the Indus tributaries; (iv) Nausharo, on the piedmont area west of the lower Indus; (v) and (vi) Kalibangan and Banawali in the Ghaggar-Sarasvatī system; (vii) Lothal on the coastal flats of Gujarat; and (viii) and (ix) Surkotada and Dholavira in the rocky terrain of Kutch (fig. 6.1).

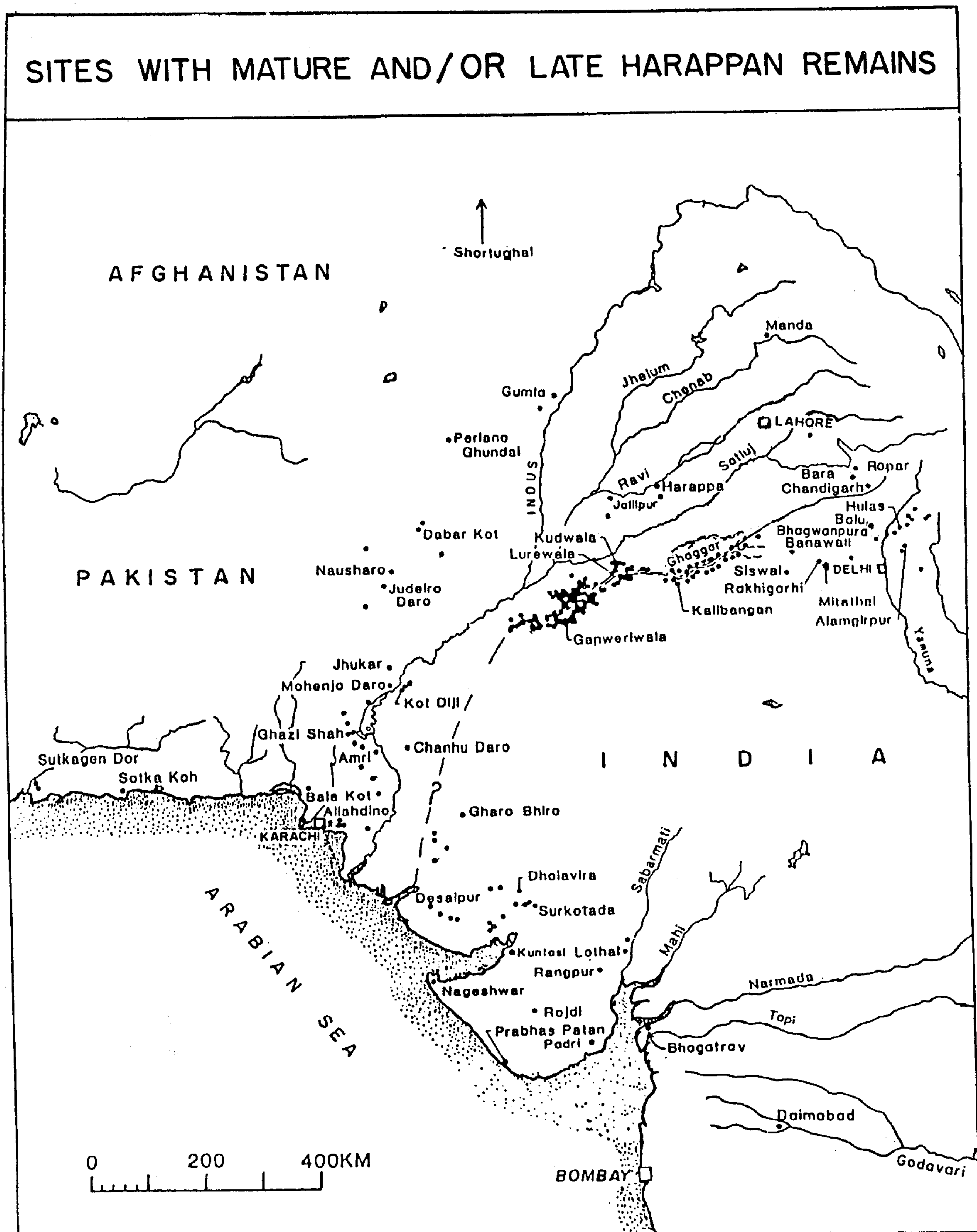

SITES WITH MATURE AND/OR LATE HARAPPAN REMAINS
Shortughal
AFGHANISTAN
Manda
Jhelum
Chenab
Gumla
LAHORE
Perlano Ghundal
INDUS
Satluj
Ravi
Harappa
Jalilpur
Bara
Ropar
Chandigarh
Hulas
Balu
Bhagwanpura
Banawali
Dabar Kot
Kudwala
Lurewala
Ghaggar
PAKISTAN
Nausharo
Judeiro Daro
Siswal
DELHI
Rakhigarhi
Kalibangan
Mitathal
Alamgirpur
Ganweriwala
Yamuna
Jhukar
Mohenjo Daro
Kot Diji
Ghazi Shah
Chanhu Daro
Amri
INDIA
Sutkagen Dor
Sotka Koh
Bala Kot
Allahdino
KARACHI
Gharo Bhiro
Sabarmati
Dholavira
Desalpur
Surkotada
ARABIAN SEA
Mahi
Kuntasi
Lothal
Rangpur
Narmada
Nageshwar
Rojdi
Tapi
Prabhas Patan
Padri
Bhagatrav
Daimabad
0 200 400KM
BOMBAY
Godavari

Fig. 6.1

(i) MOHENJO-DARO

Located on the right bank of the Indus[1] in Larkana District of Sindh, Mohenjo-daro[2] is easily one of the most outstanding sites of the Harappan Civilization (Marshall 1931; Mackay 1938). It has the characteristic planning — a smaller but higher part, on the west, designated as the 'Citadel', and a larger but lower part on the east called the 'Lower Town', with a gap between the two (fig. 6.2). The major axis in both cases lies north-south and the overall perimeter of the two units is nearly five kilometres.

The Lower Town at Mohenjo-daro seems to have been divided into blocks by two major streets running north-south and the same number east-west. Each one of these blocks was further subdivided into small units by narrower streets and lanes. While the major streets measured about 9 m in width, the narrower streets and lanes ranged from 3 m to 1.5 m. An intriguing feature of this arrangement, however, was that most of the houses, according to the excavators, opened on the narrower streets and lanes and rarely on the main street. Through the streets there passed covered, underground brick-drains with occasional cesspits or manholes, thus providing an ideal and hygienic method for the disposal of the sullage. Into these public drains water came from individual houses by means of brick-built chutes or earthen pipes.

While fig. 6.2 gives an idea of the general layout of the city, fig. 6.3 gives that of a part designated as the HR Area after the name of Hargreaves who was one of the excavators of Mohenjo-daro. An average house in the area, or for that matter in other areas as well, centered around an open courtyard from which access was had to the various rooms. While most of the rooms were evidently used as bedrooms, some may have been used for storage or similar other purposes. However, within the courtyard or in one of the rooms there was a well, and close by was a brick-pavement evidently used for bathing. In quite a few houses staircases have been noticed, which tends to suggest that there may have been an upper storey, though it is equally likely that in certain cases these opened up on just the roof. In quite a few houses latrines have also been identified. The night-soil from these discharged, *via* a sloping channel, into a receptacle (often a jar) or drain in the street/lane outside.

Besides such houses, wherein may have lived the middle class people, there were some which were very large and may have belonged to the really well-to-do. For example, a house in another (DK) area measured about 75 m across. It had two courtyards instead of the usual one, with an intermediary corridor. The smaller of these courtyards was provided with a large circular bread-oven of a type still in use in the region. One begins to wonder if the rooms around this smaller courtyard, which had the bread-oven, were, by any chance, used specially by the womenfolk — an arrangement which persisted in big Indian households even as late as the nineteenth century.

While dealing with the layout of the bigger houses, one should not lose sight of the smaller ones. In the northwestern part of the HR Area there lay a group of sixteen barrack-like quarters, arranged in two parallel back-to-back, north-south rows, separated by a narrow passage, there also being a small extension at the northern end. Each quarter had two rooms, one at the back and the other in the front. While the former may have been

[1] Although at present the river is nearly 5 km away from the mounds, there is evidence to suggest that in ancient times it flowed close to them.

[2] In the local (Sindhi) language, the word is Muen-jo-daro which means 'a mound of the dead'.

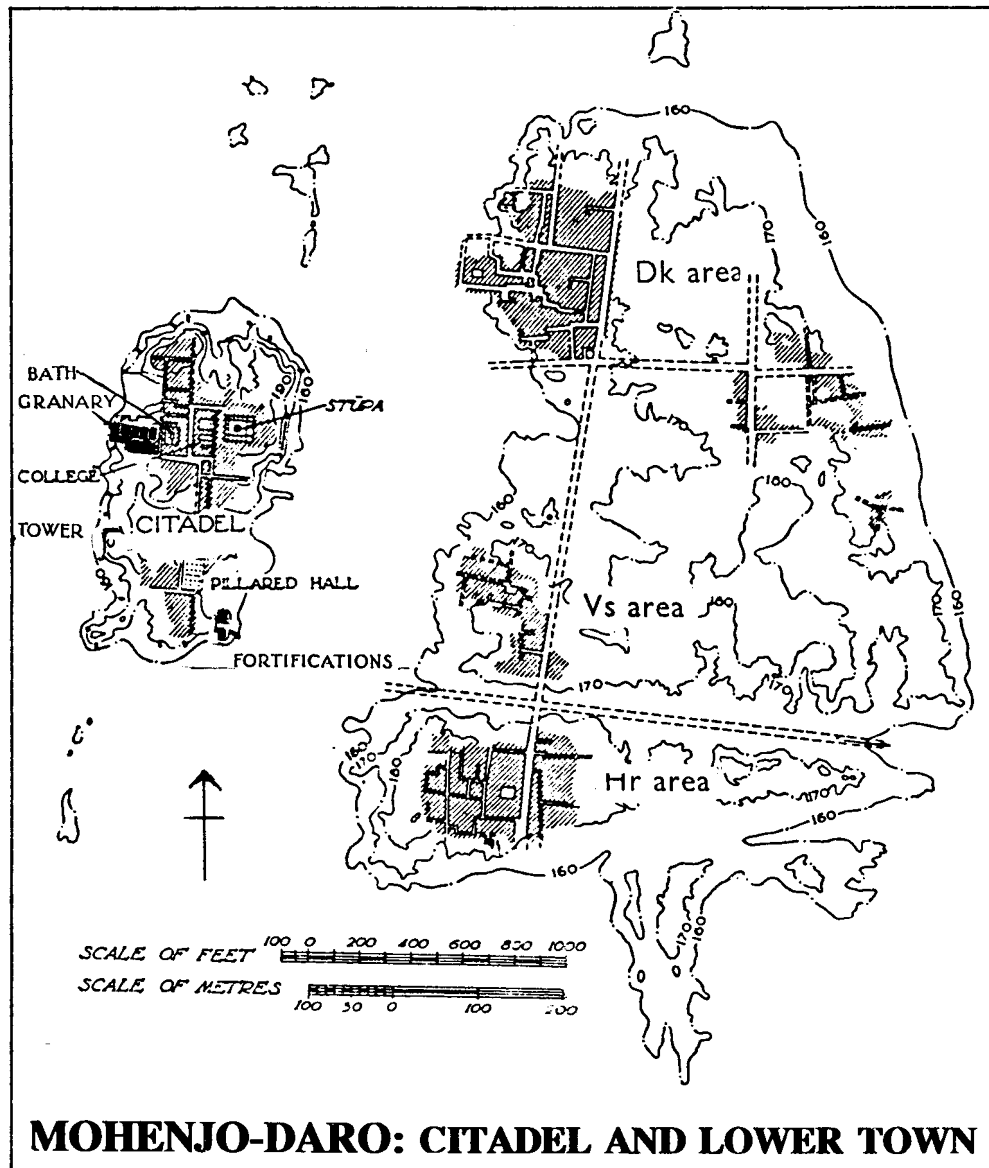


Fig. 6.2

used as a bedroom, the latter was evidently multifunctional, utilized also as a bathroom, as suggested by a small brick-floor in a corner and a nearby outlet for water. At the southern end of the complex there existed a well which may have been used by all the occupants as a common source of water-supply. These barracks are reminiscent of more or less similar quarters at Harappa (below, p. 112) which seem to have been occupied by labourers working on the nearby pounding platforms and kilns. Were the barracks at Mohenjo-daro also used by a similar class of people? The matter is worth further examination even though there is no industrial set-up in close vicinity. It has been suggested that their occupants may have worked in an adjacent massive complex which has been gue-

ssed, though not with unimpeachable evidence, to have been a temple.[1] Anyway, the set-up of these quarters speaks for itself.

Shops as well as workshops for various kinds of goods have also been identified in the Lower Town, such as those associated with copper-smithery, bead-making, shell-working, dyeing, pottery-making, etc.

During his excavations at the western periphery of the Lower Town, Mackay found some evidence which he thought was indicative of a city-wall. More recently, Dales, digging in the southwestern part of the site, came across a massive mud-brick embankment, riveted on the exterior by kiln-fired bricks and going down to about 8 m. While these pieces of evidence may suggest the existence of massive embankment-wall on the western side, it still remains uncertain whether the Lower Town as a whole was enclosed by a fortification or city-wall such as at Kalibangan (below, p. 119).

About 200 m west of the Lower Town and almost in alignment with its middle portion there lay the Citadel of which the northern part even today rises to a height of about 12 m above the surrounding ground-level. On plan, the Citadel forms more or less a rectangle whose longer (north-south) axis measures nearly 380 m while the shorter one is about half of that — a ratio also evidenced by the Citadels at Harappa as well as Kalibangan. However, whereas it is possible to explain this ratio at Kalibangan where the Citadel was found to be bipartite, no such explanation is readily available in the other cases. Be that as it may, systematic observations of exposed sections and excavations at a few places have shown that the area within the Citadel at Mohenjo-daro had a basal substratum of mud bricks, about 6 m in thickness, and it was over this mass that the structures had been built. Whether this basal mass of mud bricks constituted a single unit running all over the area or it consisted of several individual platforms with a passage in between, as was indubitably the case at Kalibangan, has not been ascertained at Mohenjo-daro. Further, while in the case of Kalibangan a separate fortification-wall, detached from the inner platforms, has been duly established, and at Harappa also Wheeler identified a fortification wall, doubt persists at Mohenjo-daro about the existence of a such a wall. At the same time, one must take note of the massive towers of kiln-fired bricks that Wheeler exposed along the southeastern edge of the Citadel and of the fact that two of them flanked a gate. He also observed another tower along the western edge where a turning-in suggests a gateway as well. Whether these towers belonged to a fortification-wall or were just tagged on to the mud-brick podium is a matter which awaits further research.

However, on this mud-brick podium there stood many a building of monumental character, out of which at least four deserve special mention. These are a granary, a bath and a 'college' on the northern half and an assembly hall on the southern (fig. 6.2). A large area still remains to be investigated and one does not know what more really awaits the spade. It has been often, though rather wishfully, surmised that underneath the second-century-AD stupa in the northern part there might be lying a massive religious building of the Harappan times (pl. VIIA).

Hugging the western fringe of the Citadel, a little to the north of the central east-west axis there stood the granary of which the

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[1] A reference may here be made to another building in the HR Area. With walls of over one metre in thickness and covering an area about 16 x 12 m, this building was approached by two sets of staircases. What, however, is more noteworthy is that parts of sculptures which may have had some religious overtones were found within and in the vicinity of this structure. Therefore, there is a much greater probability of this structure having been some kind of place of worship, although admittedly the evidence is far from conclusive.

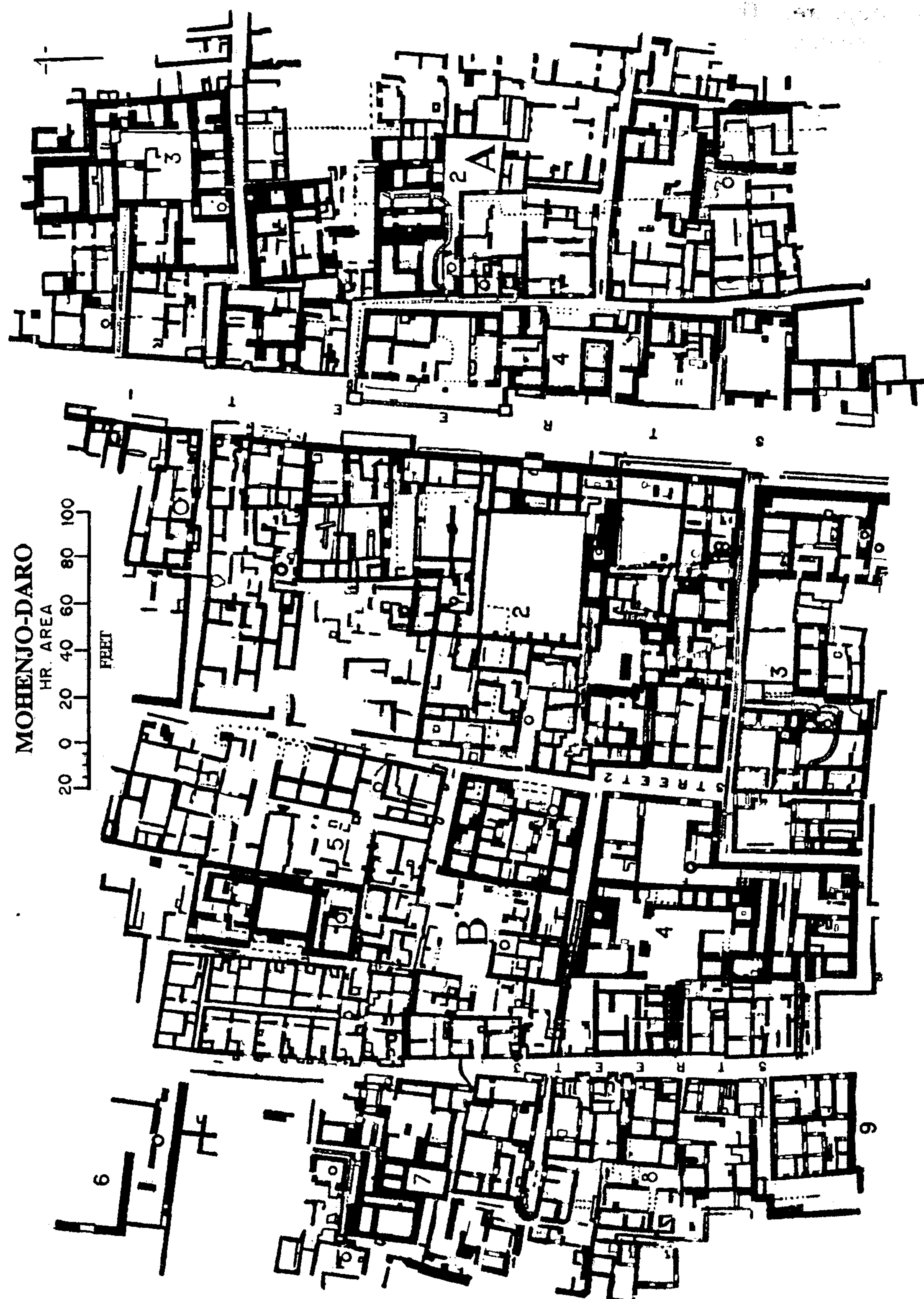


Fig. 6.3

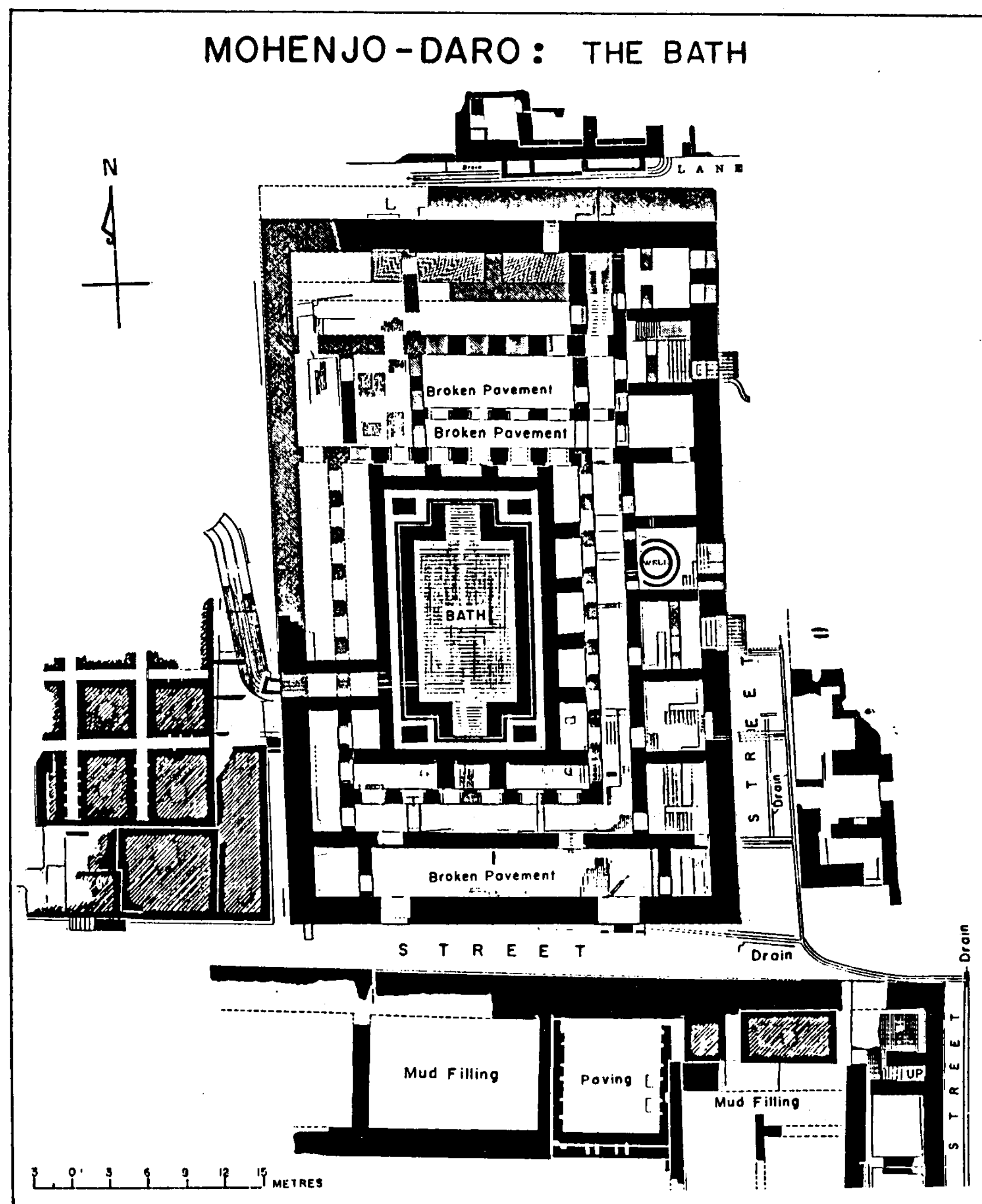
superstructure, having been of timber, has since disappeared. The basal part, however, was a tremendous mass of brick-work, battered on the exterior. Originally, it covered an area measuring 45 m east-west and half of that north-south and stood to a height of 1.5 m. It was divided into twentyseven rectangular/square blocks arranged in three rows of nine each. For whatever reason the blocks in different rows were not of the same size, but were so in the same row.

However, the point to be noted is that in between them there ran east-west and north-south passages, wide enough to allow free circulation of air. Such an arrangement ensured that the cereals stored in the timber superstructure were duly saved from humidity. Further, what is equally noteworthy about this granary-complex is the provision of a massive loading platform, immediately to the north. While the top of the platform was flush with the base of the granary-podium, its base was at the level of the ground outside. Set in its western part there was also a fairly wide and deep alcove. Thus, bullock-carts loaded with grains could easily be brought to the base of the platform and sets of workmen positioned at the base of the alcove and up at the top of the platform could easily lift the loaded bags by means of ropes and deposit the same into the granary.

To the east of the granary is a tank-complex which has come to be known as the Great Bath (fig. 6.4). Whereas the longer axis of the granary runs east-west, that of the Bath runs north-south, but both the complexes lie immediately north of a common street from where these were evidently approached. In the Bath-complex, the tank proper measured 11.7 m north-south and 6.9 m east-west and had a depth of 2.4 m. Two staircases, one each on the northern and southern sides, led to the floor of the tank. Great care was taken to see that there was no leakage of water from the tank. Thus, not only was the brick-on-edge floor set in impregnable gypsum-mortar but the same kind of mortar was also used in the side-walls which had further elaborate arrangements. Behind the innermost wall there was a damp-proof course of bitumen and then another wall; and behind this second wall there was packing of mud-bricks retained by a final wall at the back. Thus, nothing seems to have been left to chance. The discharge of used water was through a corbelled drain at the southwest corner of the floor.

Around the tank proper there ran successively a courtyard and a pillared corridor and behind three of these corridors there were rooms which, for all one can guess, may have been used for changing clothes or for some similar purpose. However, in one of the rooms there was a double-lined well which evidently supplied water to the tank. To the north of the tank-complex, with a narrow passage in between, there was a set of eight bathrooms in each of which there were stairs as well, leading evidently to an upper storey. It has been surmised that this northerly complex was used by priests who lived in the rooms above, came down to the bathrooms at specified hours and after taking their bath participated in rituals. Be that as it may, it is abundantly clear that the Bath-complex played a significant role in the life of the people at Mohenjo-daro.

The Bath-complex had a street on its east, on the other side of which there was yet another building of note, measuring as much as 69 x 23.4 m. It had a 10-m square courtyard, three verandas and a number of rooms many of which had brick-pavings. Two staircases led presumably to an upper storey. In view of the immense size of the building and perhaps because of the proximity of the Great Bath, it has been conjectured that herein lived possibly the high priest himself, maybe along with his associates. On the plan (fig. 6.2) this building has been marked as 'College', on the assumption that, in the alternative, it may



MOHENJO-DARO: THE BATH
N
LANE
Broken Pavement
Broken Pavement
WELL
BATH
STREET
Drain
Broken Pavement
STREET
Drain
Drain
Mud Filling
Paving
Mud Filling
UP
STREET
METRES

Fig. 6.4

have been perhaps a college of priests.

The fourth building to which one would like to draw attention is located in the southern part of the Citadel. Measuring 27 x 27 m, it was characterized by the presence of twenty piers inside it. These lay in five east-west rows of four each, thus producing a criss-cross pattern of aisles. The main entrance was from the north. With the aforesaid structural set-up it seems most likely that the complex was used for holding assemblies — whether religious or secular or mixed, it cannot be said with certainty.

(ii) CHANHU-DARO

At a crow-flight distance of about 130 km south of Mohenjo-daro, Chanhu-daro lies at present some 20 km east of the Indus, though there is reason to suppose that in antiquity it was not far away from the river-bank. This is indicated by the vestiges of the former course of the river in the neighbourhood. The mound which seems to have anciently been a single unit is now riven into three parts because of the large-scale erosion over the millennia.

The site was discovered and trial-trenched by Majumdar (1934) and later duly excavated by Mackay (1943). Though the natural soil was not reached because of the high subsoil water-table, yet three cultural periods were identified, with a clear break in between them. From bottom upwards, these were: I, Harappan; II, Jhukar; and III, Jhangar — the last two deriving their nomenclature from sites of the same names formerly explored in Sindh itself. While we shall deal in some detail here with the Harappan occupation, it may also be stated that the Jhukar Culture, as discussed elsewhere, was not an altogether separate entity but seems to represent a devolved stage of the Harappa Culture itself, though for quite some time it was held to have been alien and intrusive. The Jhangar Culture, of course, has nothing to do with the Harappan. Not only is it considerably removed in point of time from the Harappan but, with its characteristic burnished grey ware and other cultural equipment, has nothing in common with the Harappan.

The Harappan occupation at Chanhu-daro is divisible into three subperiods which were designated by the excavator as I, II and III from top downwards, but, following the usually accepted practice of numbering the periods/subperiods from bottom upwards, the same are now referred to as Ia (III), Ib (II) and Ic (I). What is, however, noteworthy is that these subperiods were separated one from the other by flood-deposits, signifying some sort of occupational disruption. This seems to have been much less between Ia and Ib than between Ib and Ic in which case the accumulation of earth and debris was more than a metre. These disruptions no doubt were reflected in the planning of the houses, etc., but it is more than clear that all the three subperiods belonged to the Harappa Culture itself. The platforms put up as protection against floods were sometimes pretty high and remind one of similar platforms at Mohenjo-daro.

Of the lowest Subperiod (Ia) not much could be exposed, except for a few houses. However, relating to Subperiod Ib a reasonably good bit of the settlement was exposed. It showed the characteristic town-planning, the streets and lanes crossing one another at right angles. But, for whatever reason, the orientation of these streets and consequently of the houses was not north-south and east-west, as was the usual Harappan practice, but northwest-southeast and northeast-southwest. The main thoroughfare, which seems to have been the focus of activities, measured 7.5 m in width. Almost all the streets were provided with covered drains made of kiln-fired bricks. The houses, also made usually of fired bricks, consisted of a few rooms, a courtyard, a privy and a bath. Brick-floors were generally provided in the baths and privies. Mackay (1943: 38) adds: 'The brick

floors of the privy and bathroom were customarily laid somewhat above the general floor level of the house to accord ease of drainage, and they were always edged all round to a height of 2 ½ to 3 inches to protect the bases of the walls from moisture. In all cases the privy was constructed against the street wall of the house to be as close as possible to a main drain.' The bricks, as might be expected, conformed to the usual Harappan ratio of 4:2:1.

It appears that Chanhu-daro was an industrial centre. Mackay (1943: 41-42) refers to a bead factory with furnace, covering an overall area of 9.9 x 3.75 m. In a part of this complex there ran 'a series of well-built flues, averaging 5½ inches wide by 8 inches high.' Of these flues, five running in one direction and three at right angle to the former have been identified. Mackay (1943: 42) observes: 'The thinness of the walls of the compartments above the flues together with their small size precludes the possibility of this building having been a *hammam*, or sweat-house. ... A possible clue to its use is presented by the number of beads, many unfinished, that lay scattered about on the earthen floor of room 215. Among them was a concreted mass of minute steatite beads. It had evidently been intended to glaze these, and this curious arrangement might have been built for this purpose and then never used.' Also, the occurrence in a few other houses of chunks of raw material like amethyst, crystal, carnelian and agate and of finished and unfinished beads along with drills clearly proves that Chanhu-daro was a centre for bead-making.

Likewise, seal-making was another craft practised by the Chanhu-darians. Referring to a structural unit, Mackay (1943: 50) mentions: 'This convenience appears to have been part of a seal-maker's house, for no less than three unfinished seals were found in its close vicinity. A drill-cap was also found here.' Again, referring to another locale Mackay (1943: 52) states: 'Eight unfinished seals of Harappa Period were found in Squares 7/C, 7/E, 8/D, 8/F and Trench D(I), which suggests that the northern quarter of the city was engaged in this craft.' Evdently these seals must have been made on prior orders obtained from traders and other individuals living not only in Chanhu-daro but also in various other cities.

Also noteworthy was the manufacturing of weights by the artisans of Chanhu-daro, which is as much sophisticated a job as that of seal-making, for herein absolute accuracy was the desideratum. Referring to it, Mackay (1943: 52) observes, 'many of these weights are so highly finished that we suspect that they were used for testing purposes'. Besides the foregoing, shell-working was another craft practised by the people of Chanhu-daro.

Was such a flourishing industrial centre unfortified? The question naturally comes to the mind, since most of the Harappan urban settlements, big or small, had fortifications around them. Mackay does not refer to any fortifications at Chanhu-daro. But then in 1943 the existence of fortifications around Harappan sites was not even theoretically discussed, much less investigated. We thus feel it was time to conduct fresh excavations at the site to answer the question.

(iii) HARAPPA

Washed anciently by the Ravi which has since shifted its course about 10 km away, leaving only its dry bed along the northern fringes of the site, Harappa is situated in Sahiwal District of Panjab (Pakistan). Though as extensive as Mohenjo-daro, i.e. nearly 5 km in circuit, Harappa did not have precisely the same layout as the former. Over here the Lower Town did not lie due east of the Citadel, as it did not only at Mohenjo-daro, but also at Kalibangan. At Harappa the equivalent of the Lower Town lay mainly to the southeast of

the Citadel. The contours do not show any mound-formation due east of the Citadel, unless it is assumed that originally there did exist a mound in this part also but has since been thoroughly wiped out. There is also no record to establish that the brick-robbing that took place at Harappa in the last century for laying the track for the Lahore-Multan railway was concentrated in this area.

The Citadel at Harappa formed a rough parallelogram on plan, measuring approximately 415 m north-south and 195 m east-west (fig. 6.5). We have already commented earlier on this roughly 2:1 ratio. However, what is intriguing is the shape itself — the parallelogram. As would be seen later even at Kalibangan both the Citadel as well as the Lower Town were parallelograms and not rectangles. We know full well that the Harappans did build perfect rectangles in so far as their houses and even public buildings were concerned. Why then did they choose to enclose their settlements with parallelogram-shaped fortifications? Did the wind-factor, i.e. an attempt to train and divert the northerly wind which can sometimes be icy cold in these areas during the winter, have anything to do with it? Only further research and analysis can give a satisfactory answer.

A section cut across the southern part of the western periphery of the Citadel by Wheeler in 1946 revealed three important things: (i) a fortification-wall; (ii) a platform at its back; and (iii) the remains of a pre-Mature Harappan Culture underneath them both (Wheeler 1947). Made of mud bricks, the fortification had a basic rampart over which there rose the actual wall riveted on the exterior with a stepped facing of kiln-fired bricks. The wall measured 13.5 m wide at the base, but tapered upwards. Likewise, the revetment tapered as it went up, the width at the base being 1.2 m. At the northwestern corner of the Citadel three successive rebuilds of the revetment were observed. At frequent intervals along the sides, as well as at the corners there stood massive towers. Wheeler also noted a ramp-entrance, duly screened and protected, in the northern half of the western side. A present-day rain-gulley about the middle of the northern side also suggested a gateway-complex to him.

Though juxtaposed to the fortification-wall, the 6-m high platform on the inner side was, as the aforesaid section revealed, a separate entity. While its base lay at the same level as that of the fortification-wall, implying their contemporaneity, it did not rise as high as the latter. On it were found the remains of six successive structural subperiods.

Earlier excavations by M.S. Vats (1940), had also produced evidence of massive mud-brick remains within the Citadel area. However, nobody has tried to ascertain if there was a single platform all through the Citadel, as thought by some, or there were separate ones as in the case of Kalibangan. Nor have any worthwhile excavations been carried out to reveal the character of the buildings inside as has been done both at Mohenjo-daro and Kalibangan.

To the north of the Citadel there stood, amongst others, three noteworthy sets of structures: successively (i) workmen's quarters, (ii) pounding platforms, and (iii) a granary (fig. 6.5). The complex speaks, as it were, of a regimented layout, each unit in some way being functionally connected with the other.

The workmen's quarters, of which at least fifteen units have been identified, lay in two east-west rows with a lane in between. Also, each unit was separated from the other by a narrow gap. Measuring about 17 m north-south and a little over 7 m east-west, each unit consisted of two parts, a courtyard in the front and a room at the back. The entrance was not straight but oblique so as to ensure privacy. These quarters were enclosed by a compound wall, partly for safety and

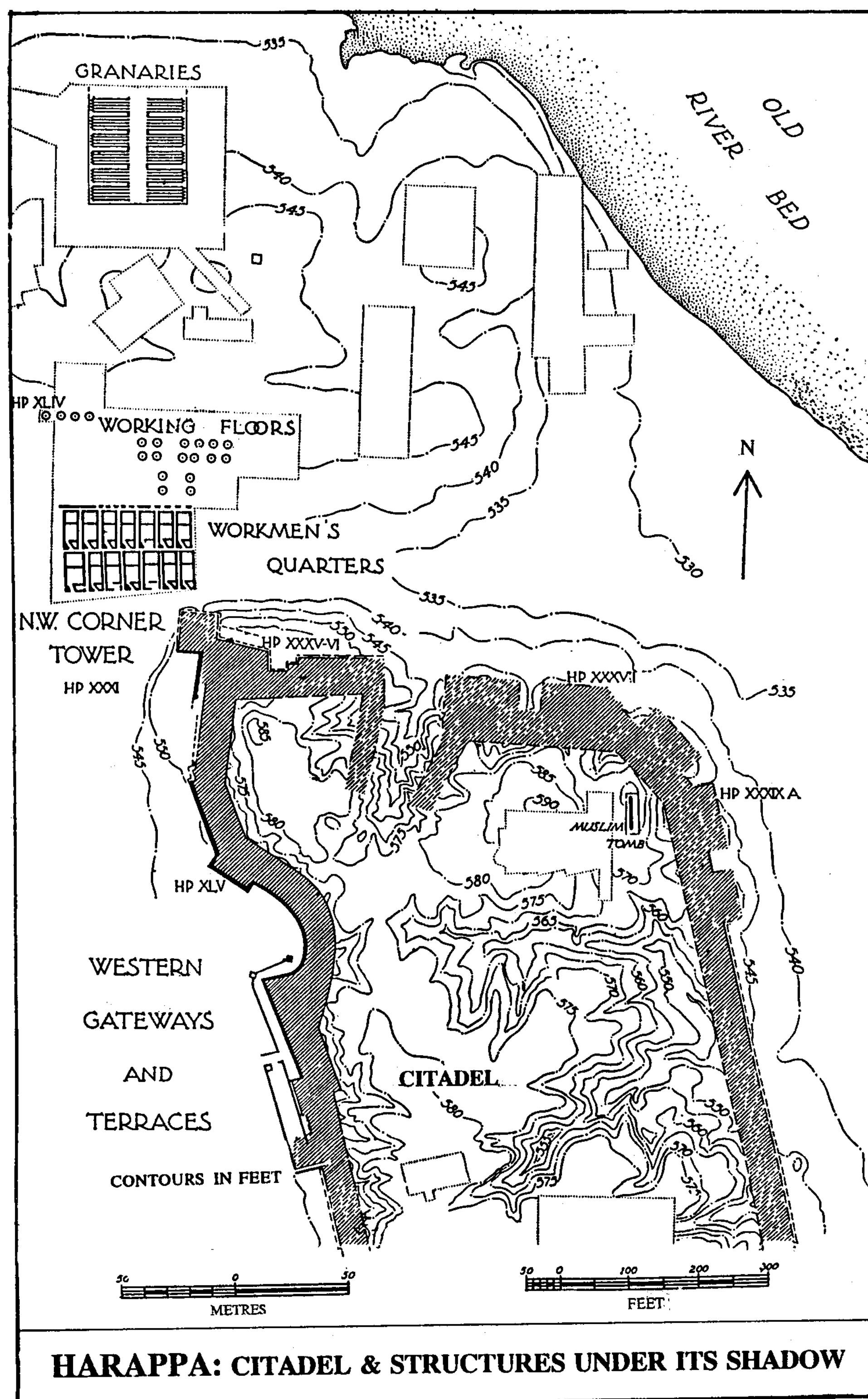

GRANARIES
OLD
RIVER
BED
HP XLIV
WORKING FLOORS
WORKMEN'S
QUARTERS
N
N.W. CORNER
TOWER
HP XXXI
HP XXXV-VI
HP XXXV
HP XXXIX A
MUSLIM
TOMB
HP XLV
WESTERN
GATEWAYS
AND
TERRACES
CITADEL
CONTOURS IN FEET
METRES
FEET
HARAPPA: CITADEL & STRUCTURES UNDER ITS SHADOW

Fig. 6.5

partly perhaps to provide a separate entity to the complex.

The pounding platforms, of which eighteen examples have been brought to light and more may be lying buried, were arranged variously in five rows. Circular on plan, with the average diameter a little over 3 m, each platform was made of circular rings of bricks laid on edge. In the centre there was a hollow into which, most probably, a wooden mortar was fitted for pounding grains. Although the mortar has since perished, tell-tale evidence still remains in the form of husked barley, straw, etc. in the hollow. Such a use for thrashing grains goes well with the location of the granary hardly 270 m to the north.

Another significant point about the siting of the granary deserves mention. Within 300 m to its north is the bank of the river (now, of course, dry). It seems reasonable to assume that boats coming from up- and down-stream villages unloaded bags of wheat and barley which were then transported by human labour to the granary and stored therein. The granary-complex (fig. 6.6) stood on a core of mud platform retained on the exterior with kiln-fired bricks and also surfaced in most parts with the same. Altogether there were twelve units arranged in two blocks of six each, with a 7-m wide passage in between. The latter was evidently used for temporary stacking of the bags before these were deposited inside the units, or for a similar stacking at the time of their withdrawal or even disbursement. Each unit measured 15 x 6 m externally. Thus, excluding the area covered by the walls, it is estimated that the total floor-space provided by all the twelve units may have been something like 850 sq m. It would be rather subjective to guess the height of these units, otherwise one could have got the tonnage of the grains stored therein — an exercise which would have given us a glimpse, howsoever hazy, into the surplus wealth at the disposal of the authority inhabiting the Citadel under whose shadow the entire foregoing complex lay.

Mound E, which remained neglected all these years, is currently under excavation by a team from USA in collaboration with the Department of Archaeology, Pakistan. The USA team was formerly headed by Professor George F. Dales who unfortunately is no more. His place has been taken by Professor Richard H. Meadow, with Dr. Jonathan Mark Kenoyer as Co-Director. The work, as already discussed in Chapter IV, has thrown valuable light on the antecedents of the Mature Harappan Civilization, of which only an inkling was given by Wheeler's excavation at the western fringe of the Citadel-mound. The occupational strata assignable to this early phase are no less than 2.5 m in thickness, and there is also evidence of continuous occupation from these early days right into the Mature Harappan times. Secondly, the renewed excavation has demonstrated that not only the Citadel but the Lower Town (Mound E) was also fortified.

This fortification-wall, called by the excavators as the 'Perimeter Wall' (Meadow, Kenoyer and Wright: In press), has been traced to a length of over 250 m along the southern edge of Mound E and of its extended part to the east, named ET, on which is located a Thānā (Police Staion). Made of large-sized (40 x 20 x 10 cm) mud bricks, the wall has been noted at places to be as much as 6.2-7.1 m in width at the base and is available to a height of over 2.6 m. Piercing this wall was a Gateway, marked out by two piers made of kiln-fired bricks, one each on the west and east. The western pier, available to a height of 1.3 m, measures 3 x 3 m on plan. The one on the east, exactly of the same dimensions, is available to a somewhat greater height, viz. 2 m. A south-north mud-brick wall, constituting a part of the fortifications, separates Mound E from Mound ET. Also, along it on the east there ran a street, 2.6 m in width. However, only further work can reveal

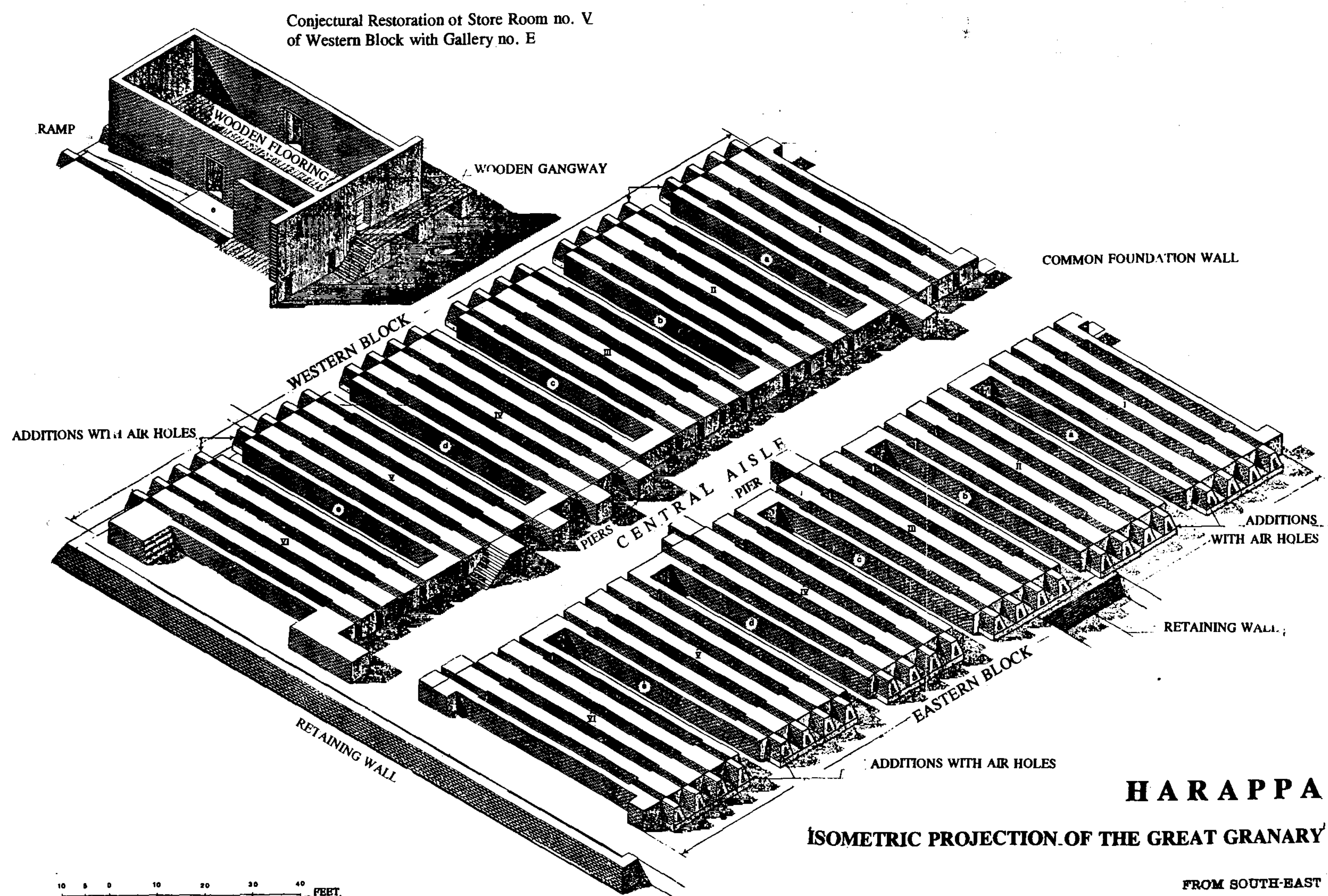

Conjectural Restoration of Store Room no. V
of Western Block with Gallery no. E
RAMP
WOODEN FLOORING
WOODEN GANGWAY
COMMON FOUNDATION WALL
WESTERN BLOCK
ADDITIONS WITH AIR HOLES
CENTRAL AISLE
PIER
PIERS
ADDITIONS
WITH AIR HOLES
RETAINING WALL
EASTERN BLOCK
ADDITIONS WITH AIR HOLES
RETAINING WALL
HARAPPA
ISOMETRIC PROJECTION OF THE GREAT GRANARY
FROM SOUTH-EAST
10 5 0 10 20 30 40 FEET

Fig. 6.6

the purpose of this separation, such as whether the Lower Town was intended to be subdivided into two functional segments. In this context, it is worth noting that on Mound E, to the east of the above-mentioned street, raw materials and waste-products have been found indicating that somewhere here lay workshops for manufacturing chert weights, steatite disc-beads, shell objects, etc. Passing through the gateway was a corbelled drain of kiln-fired bricks, the interior measuring 1.66 m in height and 58 cm in width. The nature of the deposits in this drain shows that it was meant to take out storm-water from the township, which, incidentally would indicate a reasonable degree of rainfall during those days. For the drainage of sullage there were smaller drains, in which was found the usual material like greenish earth, ash, charcoal, potsherd, etc.

As a result of these new excavations, it is now possible to subdivide the Mature Harappan occupation (Period 3) into three subperiods, named A, B and C. Although much more work is needed to get a detailed picture of these subdivisions, it appears that in Subperiod 3A the terracotta animal figurines were made with conjoined legs, a feature which became rare as time passed. On the other hand, the appearance of the pointed-bottom goblets marked out Subperiod 3C from 3B.

In the above-mentioned paper the excavators have published 16 Carbon-14 dates for the Mature Harappan occupation. Of these, only two are off the mark, one going back to the thirtyfourth century BC and the other coming up as late as the seventeenth. The remaining fourteen fall within the time-range between the twentysixth and twentyfirst centuries BC.

Period 4 represents a transitional phase towards a cultural *milieu* known by the name of Cemetery H, constituting Period 5 in the overall sequence of the site. Remains of this latter period have been found rather scantily on Mounds E and ET. However, these had duly been identified on Mound AB as well as in the form of a cemetery from which, in fact, the name has been derived. Of this cemetery, two burial-levels had been brought to light, the lower one containing full skeletons and the upper a few selected bones in pots.

To the south of the Citadel (Mound AB) and to the southwest of the Lower Town (Mounds E and ET) there lay the cemetery of the Mature Harappans (R-37) where fully extended burials were brought to light for the first time by K.N. Shastri. In 1946 Wheeler did further work on these burials and established their relationship with the Cemetery H burials which had earlier been excavated by M.S. Vats. In recent years more work has been done on the Mature Harappan Cemetery by the joint USA-Pakistan team. We shall deal more with these burials and the Cemetery H Culture at an appropriate place later.

(iv) NAUSHARO

While discussing the antecedents of the Mature Harappan Civilization we referred to Periods IA, IB, IC and ID of this site. Of these, the last-named represented a transitional stage from the earlier ones towards the Mature Harappan. Here we shall deal with Periods II, III and IV which represent the successive stages of that civilization.

For whatever reason, the Period II people occupied the southern and not the northern part of the site. On the southern side of their settlement they constructed a mud-brick wall which is extant to a height of 3.8 m. In width it varied from place to place, ranging from 3.5 m to 6.85 m. The wall had a batter both on the exterior as well as the interior. There are traces of mud plaster on these faces. Not conjoined with any other structure either on the interior or the exterior, this long wall may have functioned as an independent peripheral wall. However, its counterparts on the eastern and western sides of the mound have since been

destroyed by erosion. But on the northern side the retaining wall of the previous habitation (Subperiod ID) was utilized. A 3.12 m wide opening in the wall on the southern side provided a gateway.

The settlement inside was also planned in the usual Harappan style, with the streets and lanes running at right angles to one another. Along the inner sides of both the northern and southern peripheral walls also there was a street. Altogether five rebuilding phases were observed, and at no point of time were the streets encroached upon. Amongst the structures assignable to the first constructional phase was a massive 4.5 m wide platform which was traced to a length of over 13 m. It may be recalled that the construction of platforms is a noteworthy feature at most of the Mature Harappan sites. The houses were also planned on the usual pattern, viz. a courtyard and a series of rooms around it. Fireplaces and storage jars were also located. While all through the five constructional phases only mud bricks were used in walls, a noteworthy feature in the fifth phase was the use of kiln-fired bricks in a drain. Assignable to the final phase was also a pear-shaped kiln of which the combustion chamber was duly identified. In it was also found the base of a pillar which evidently supported the floor of the firing chamber above. Although no seals or weights were encountered in Period II, there is little doubt about its Mature Harappan association, as evidenced by the pottery and other finds. The painted designs included intersecting circles, pipal trees and peacocks. Amongst the antiquities mention may be made of: terracotta humped bulls, bird-shaped whistles, pot-bellied female figurines and sharp-edged potsherds which may have functioned as blades for some specific use; long chisels, an arrowhead and a large knife of copper; and two small vases and a lamp of calcite.

Although there was no cultural break at the site, yet the inhabitants of Period III chose to give up the house-alignments of their predecessors and have their own. This, incidentally, helped the excavators to clearly separate the pottery and other artefacts of one period from the other without any mix-up. Thus, an analysis showed that whereas there was a continuity of most of the pot-forms, there were some that got discontinued, for example the 'pedestalled dishes decorated with concentric incised circles'. An unusual pot of Period III was a plate painted in three colours — red, black and white, the design consisting of a partridge and a quadruped, one on each side of a net. While the terracotta figurines, both human and animal, were of the usual Harappan type, particular mention may be made of horses (Jarrige *et al.* in press). In this context, it may be recalled that the presence of the horse is still debated in the Harappan context, though evidence to that effect has already been found at Lothal, Surkotada, etc. Noteworthy is also the occurrence of a double-spiral-headed pin of bronze. This type occurs as far northeast as Manda in Jammu and Kashmir in India.

Of Period III, two subperiods have been identified, viz. A and B. The house-blocks, as usual, were oriented in both the subperiods along the cardinal directions. In one case, a street measured 5 m in width, and a cross lane 1.5 m. While the houses had their courtyards, living and storerooms, etc., noteworthy was the presence of three different features associated with fire. In most cases, the fireplaces, made of mud bricks, consisted of two parts, a square one on the north and a rectangular one on the south. While the northern part contained a clay bin or a jar, the southern, partitioned in length, contained a huge quantity of ashes. Another kind of fireplace was circular on plan. Quite often it had 'a vertical brick which was coated with clay in order to look round'. The third type was pearshaped and half buried. In this case a central pillar

supported the upper chamber. The excavators are inclined to think that the last-named examples were used as kilns.

There is one radiocarbon date (BETA-18845) which gives to Period III a horizon around 2580 BC, though two other dates (BETA-32315 and BETA-65843) would place it between 2340 and 2020 BC. Anyway, put together, Periods II and III of Nausharo fall well within the limits of the chronological horizon of the Mature phase of the Harappan Civilization, arrived at on the basis of various kinds of evidence (Chapter XIII).

Because of recent graves and a good deal of surface erosion, not much area of Period IV habitation could be exposed. Nevertheless, enough material has been obtained by way of the ceramics to establish its identity as well as its relationship with the preceding Period III. It is now clear that the two are interrelated and that, in spite of the fact that many of the pottery forms and painted designs of Period IV are new, there was a continuity from Period III. The new elements seem to have been partly influenced by Kulli contacts which can be noticed in the form of painted animal motifs, e.g. the elongated bull with large dot-centred circular eyes and caprids, and the typical terracotta female figurines. Amongst the new shapes particular mention may be made of pedestalled bowls and trumpet-shaped bowls with grooved rim. This transformation indicates that a kind of regionalization of the Harappan Civilization had begun to set in. Its approximate time may be around the turn of the third and second millennia BC, as indicated by a radiocarbon date (BETA-65854, calibrated between 2200-1900 BC). Indeed, this is about the time when a break-up of the monolithic core of the Mature Harappan Civilization and consequent regional manifestations are noticed in various parts of the subcontinent, whether it is the Ghaggar-Sarasvati valley or Gujarat (Chapter XIV).

(v) KALIBANGAN

Amongst the northeasterly sites of the Harappan Civilization, Kalibangan is one which has been most extensively and intensively excavated. As a result, it has not only added some new dimensions to that civilization but has also highlighted what preceded it (Lal 1979a; Thapar 1975). Thus, for example, it has demonstrated the bipartite character of the Citadel and has shown that in its southern half there existed, on high platforms, certain structures which had religious overtones. It has also shown that even the Lower Town was fortified. It has revealed some new methods of the disposal of the dead. It may perhaps be recalled that associated with the pre-Harappan settlement there was a ploughed agricultural field with criss-cross furrow-marks, the earliest of its kind to have been brought to light through an archaeological excavation. It stands to reason that the same pattern may have been followed by the Mature Harappans as well, since it is even today in vogue in these regions. Besides, Kalibangan has also produced evidence of the earliest dated earthquake which brought to an end the pre-Harappan settlement around 2700-2600 BC. After a gap of about a century or so, the site was reoccupied with full manifestation of the Mature Harappan features. Kalibangan has also yielded two potsherds with short inscriptions which have demonstrated once and for all that the Harappan script was written from the right to the left. We shall go into the details of all the foregoing aspects as we proceed.

At a distance of about 300 km northwest of Delhi, Kalibangan lies in Hanumangarh District of Rajasthan. Though now dry and carrying only some rain-water during the monsoons, the Ghaggar on whose left bank the site is situated, was, from all accounts, a fairly wide and perennial river in ancient times, fed by a number of tributaries. Evi-

dence suggests that the Yamunā from the east and the Sutlej from the north joined the Ghaggar. Though now dried up near Sirsa, the Sarasvatī constituted a noteworthy part of the system. Indeed, ancient literature suggests that the Ghaggar-Sarasvatī channel went by the name of the latter. The combined stream of all these rivers finally joined the sea at Rann of Kutch.

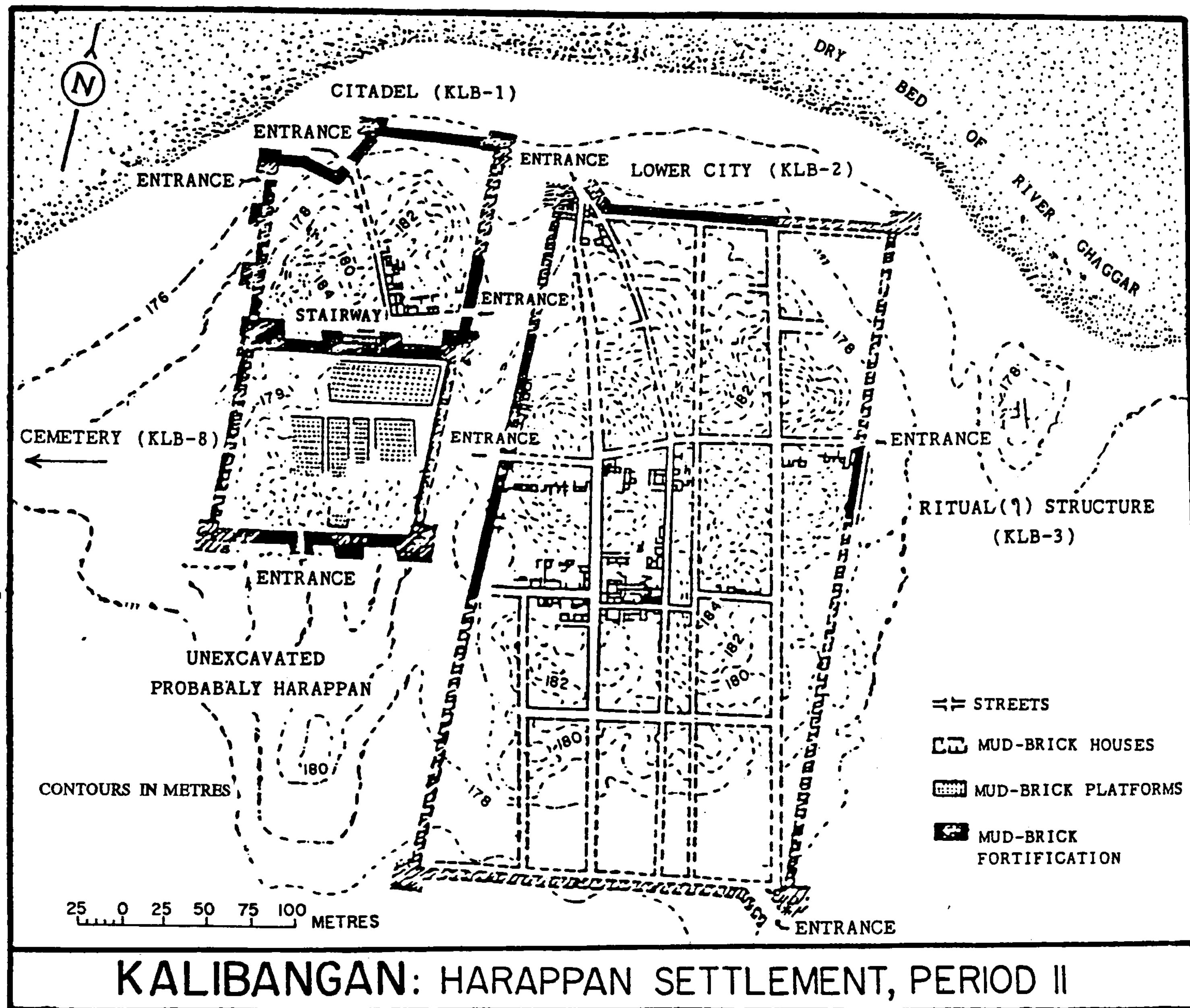
Like Mohenjo-daro, Kalibangan has two mounds: a smaller one, named KLB-1, on the west; and a bigger, named KLB-2, on the east (fig. 6.7). The overall perimeter of the area covered by these mounds is between 1.5-2 km, considerably less than that of Mohenjo-daro or Harappa. The maximum height of the Kalibangan mounds above the surrounding ground-level is nearly 10 m (pl. XXVIIIA).

As already mentioned, Kalibangan has brought to light a settlement which preceded the Mature Harappan. In Chapter IV we discussed in some detail the cultural contents of this earlier period. The layout of the succeeding Mature Harappan settlement (Period II) was in the usual grand style, viz. with the Citadel on the west and the Lower Town on the east. In siting the Citadel, advantage was taken of the height provided by the remains of the earlier settlement. For the Lower Town a fresh area, about 40 m to the east of the former, was taken up. However, unlike at Mohenjo-daro where the existence of a fortification around the Lower Town is debated, at Kalibangan the Lower Town was duly fortified (cf. fig. 6.7).

The arms of the fortifications around the Lower Town formed a rough parallelogram on plan, with the eastern and western ones running along the cardinal directions but the other two slightly deviating towards east-northeast instead of following an east-west alignment. While the remains of the northern, western and eastern arms were duly found out, those of the southern could not be, since the area concerned has been thoroughly eroded. However, it is only reasonable to assume that anciently it did exist. Under these circumstances, the north-south extent of the township also can be only roughly estimated: it was noted to be not less than 360 m. The east-west extent was, however, duly ascertained: 240 m. Here it needs to be mentioned that the fortifications had been constructed around the Lower Town right from its inception. Over the long duration of the occupation of the site, these surrounding walls were reconstructed or repaired three to four times (pl. XXVIIIB). While in the initial construction large-sized bricks, measuring 40 x 20 x 10 cm, had been used, in the subsequent ones bricks of the same size as used for the houses inside, viz. 30 x 15 x 7.5 cm, were employed. All through mud bricks were used, except in one or two places and that too for a limited purpose. There is, however, evidence to show that the fortification-walls were provided with mud-and-chaff plaster.

Two gates of the fortifications were identified: one at the western end of the northern wall, leading out to the river-bank and the other about the middle of the western wall, providing an access to the Citadel. It is probable that there were corresponding gates on the southeast and east but, since the walls at the likely locations have been completely wiped out, the same could not be established.

The town within was laid out with a criss-cross pattern of the streets. It must, however, be mentioned that the streets did not follow the alignment of the fortification-walls. The result was that the orientation of the streets was not duly north-south and east-west. Of the roughly north-south streets, five were identified, there also being the possibility of a sixth one in the northeast sector. In the east-west direction five streets were located, of which the northernmost ran along the inner side of the fortification-wall. Such a street was evidently a necessity, otherwise all the north-south streets would have met a dead end against the fortification-wall. It is likely



KALIBANGAN: HARAPPAN SETTLEMENT, PERIOD II

Fig. 6.7

that there existed a similar street on the inner side of the southern fortification-wall but since, as already stated, the area concerned is completely eroded, the possibility remains a mere conjecture.

At the northwestern gateway two streets coalesced (pl. XXIXA). A noteworthy point about the streets is the ratio in their width which was 1:2:3:4. Thus, while the narrowest (evidently a lane) was only 1.8 m in width, the others measured 3.6 m, 5.4 m and 7.2 m (pl. XXXIA). Bullock-carts could easily ply through these streets (pl. XXXIB), except the first one. To prevent house-corners from being damaged by the vehicular traffic, wooden fender-posts were provided thereat. It may also be noted that full care was taken by the authorities to see that no encroachments were made on the streets (pl. XXXB), even though the site witnessed as many as nine structural subperiods, accounting for a total height of about 10 m. The only structures to be seen within the streets were small platforms (*chabūtarās*) abutting the houses, of a kind seen even now in the villages of the region. It was on these platforms that neighbours sat together for a chat or for discussing even matters of serious interest to the community. However, what one does miss in the Lower Town at Kalibangan are the street-drains, so conspicuous at Mohenjo-daro. The sullage from inside the houses was discharged into troughs or large jars embedded into the ground immediately on the exterior (pl. XXIXB). It is to be assumed that their periodical clearance was organized by the civic administration.

With the above-mentioned layout of the streets, the township was divided into blocks, and each block had a number of houses in it. A house usually consisted of a courtyard and a number of rooms arranged along two or three of its sides, the fourth one being left out for the entrance. Sometimes, the rooms could be two-deep, i.e. one behind the other, or there could be a verandah between the courtyard and the rooms behind. The entrance to the house was sufficiently wide so as to allow easy passage of bullock-carts which seem to have been parked inside. In the courtyard there were rectangular troughs, made of mud bricks in which, judging from modern analogies in the region, fodder was placed to feed the cattle. In a few cases, a series of lower halves of jars was also noticed wherein evidently water was kept for the cattle. In many courtyards a well, lined with wedge-shaped kiln-fired bricks was also noticed. A part of the close-by floor was sometimes paved with kiln-fired bricks. In a few cases mud-brick staircase was also noted in the courtyard, juxtaposed to the outer wall of one of the rooms. It may have led to a second storey or just to the roof above. Evidence suggests that the roofs were made by using wooden rafters, bamboos and reeds overlain with clay.

In a corner of the courtyard there were ovens for cooking. Sometimes, perhaps in winter, cooking was also done inside the rooms. The rooms were paved, either with rammed earth or mud bricks or, as noted in one case, with terracotta tiles decorated with an incised design of intersecting circles (pl. XXXA). Some of the rooms were used for storage, as indicated by the presence therein of several jars. Of no less interest is the fact that one of the rooms was often earmarked for ritualistic purpose. Herein were found what have been termed, in the absence of a more appropriate word, 'fire-altars'. Oblong on plan and sunk in the floor, these were generally placed close to the eastern wall with the result that whosoever used them had to face the east. Within the altar there stood a central stele made of clay, around which were placed circular-biconvex cakes, again of clay, apparently as some kind of offering (pl. XXXIIIB). The presence of ash and charcoal established their association with fire. Fire-altars have also been noted at Banawali, a site further to the northeast in Haryana. However, no fire-

altars had been reported from either Mohenjo-daro or Harappa. Maybe, being of clay, these were missed in the early excavations when the digging methodology was not so advanced. Or, it is equally likely that the Kalibangan fire-altars represent a cult prevalent in the northeastern and southern regions (e.g. at Lothal) and not in the western one.

In so far as the layout of the Citadel at Kalibangan is concerned, it is much more intelligible than that at either Mohenjo-daro or Harappa. In the case of Mohenjo-daro, while we have a fairly detailed picture of the structures within the Citadel, the fortifications are in jeopardy. On the other hand at Harappa, while there is clear evidence of the fortifications, the layout of the interior is not known. In the case of Kalibangan, in spite of four millennia of depredation, we have been able to retrieve a much clearer picture both of the fortifications as well as of inner layout. As mentioned earlier, the Mature Harappan people took advantage of the height of the earlier mound and sited the Citadel on it. In doing so, they utilized the western and northern arms of the earlier fortification making, of course, such additions and alterations as deemed necessary. On the southern side, however, there were some noticeable variations. But on the east the pre-Harappan alignment was completely forsaken and a new arm provided west of the earlier one. This was evidently done in order to execute a predetermined plan, according to which the overall outline of the Citadel constituted a parallelogram, the north-south arms measuring 240 m each and the east-west ones 120 m — clearly a favourite Harappan proportion of 2:1, as noticed in the case of bricks whose length was twice the breadth. This parallelogram was divided into two equal rhombs, a northern and a southern, by a medial east-west partition-wall (fig. 6.7; pls. VIB and XXXIV). At the corners and flanking the entrances there were rectangular towers (pl. XXXVA). The maximum height available was 3.6 m. There was no revetment of kiln-fired bricks but thick mud-and-chaff plaster was duly applied as a protective coating.

As in the case of the fortifications around the Lower Town, those encompassing the Citadel too were constructed initially with large-sized bricks, viz. 40 x 20 x 10 cm. However, later on, in repairs and reconstructions bricks of the size used in houses, viz. 30 x 15 x 7.5 cm, were used. But the employment of different sizes of bricks had no chronological significance. The fortifications of both the Lower Town and the Citadel were constructed right from the beginning of the occupation.

The nature of the structures inside the aforementioned two rhombs of the Citadel differed fundamentally, though put together these constituted an integral whole. Thus, while in the southern half there were high platforms or podia over which stood individual ritualistic or similar structures, in the northern half there were residential houses, probably of priests and administrators who managed the affairs of the southern half and most likely of the settlement as a whole.

In the southern rhomb, as just indicated, there stood a series of mud-brick platforms of considerable heights, oriented along the cardinal directions. Each platform was separated from the other as also from the fortification-wall where it lay close to it, by intermediary passages. The idea evidently was that people could have independent access to whichever platform they liked, without necessarily having to go to the others. Though not much evidence has survived, staircases/ramps seem to have been provided for going up. Through these passages there also flowed corbelled drains of kiln-fired bricks. This, incidentally, establishes that the concept of street-drainage was not altogether lacking amongst the Kalibanganites. Secondly, it also shows that in regard to drainage more care was bestowed on the Citadel than on the Lower Town, perhaps signifying their relative hierarchy.

On account of the vagaries of weather over the millennia and in no less measure due to human interference, most of what was there on the top of these platforms has disappeared. In fact, in certain parts of the southern rhomb even the platforms have been completely denuded. However, in at least two cases it was possible to have an idea of what might have originally stood there.

Thus, on the top of one of these platforms there lay in a north-south alignment seven contiguous fire-altars (pl. XXXIIIA). As usual, these were oblong on plan, slightly sunk into the ground and plastered on the interior with mud. Inside each there was a stele of clay, fired or otherwise. Around the stele there lay ash, charcoal and parts of terracotta 'cakes'. Immediately to the east of this row of fire-altars there stood a wall of kiln-fired bricks, running north-south. The net effect of such a disposition was that those who used these fire-altars had necessarily to face the east. Close by, to the west had been embedded the lower half of a jar which also contained ash and charcoal. It evidently formed a part of the fire-altar complex. In the neighbourhood of these altars there was a well with associated bathing pavements and a drain, in all of which kiln-fired bricks had been used. It would not be unreasonable to surmise that those who performed the ritual at these altars had to have a ceremonial bath before proceeding with the worship. Even now a bath is a preliminary requisite amongst Hindus before performing a ritual.

On another platform was encountered a rectangular brick-lined pit in which there lay bovine bones and antlers (pl. XXXIIA). It seems that this complex was associated with some kind of sacrifice. The suggestion of animal-sacrifice comes from the discovery of a terracotta 'cake' from the site which depicts on one side a deity having a headgear of horns with a central feather and on the other an animal being pulled forward by a person by means of what looks like a noose around the animal's neck (pl. XXXIIB). That this figure could very well have been that of a deity is suggested by the depiction of figures on the Indus seals, wearing similar headgear: for example, the well known '*Paśupati*' seal from Mohenjo-daro. In addition to the foregoing brick-lined pit, there were located on the same platform a brick-lined well as also a fire-altar. Thus, the religious association of this platform too seems to be established.

As stated earlier, not much remains of what stood on the other platforms. However, it may well be that one of these carried on it a granary, as was the case at Mohenjo-daro. But this would remain only in the realm of conjecture.

There were two entrances to the southern rhomb of the Citadel, one across the southern arm of the fortification, i.e. from outside (pl. XXXVB), and the other through the medial wall between the two parts, for bringing in people from the northern rhomb. In both these cases steps were involved. It would imply that no vehicles could enter the southern rhomb. Perhaps this was as it should have been: those entering the religious campus ought not to ride about in vehicles, but should pay their obeisance while on foot.

In the northern rhomb of the Citadel there were no platforms, but only residential buildings. These were located on either side of a street which started not far from the aforementioned entrance to the southern rhomb and proceeded towards the north-western gateway of the complex. This gate provided an access to the river and must have been the entry-point for tributes brought from villages up and down the stream. A gate on the eastern side was evidently for communication with the Lower Town.

Between the southernmost houses in the eastern part of the northern rhomb and the partition wall between the two rhombs there was a long and sufficiently wide pathway

paved with mud bricks set on edge (pl. VIB). Running east-west, the pathway went almost up to the staircase which in turn led to the interconnecting doorway between the two rhombs. With the background of the fact that in the southern rhomb there were religious structures and in the northern one the residential buildings of those who probably conducted the religious ceremonies and looked after their administration, it seems tempting to fancy that on specified occasions this paved pathway may have been used by the priests marching in a ceremonial procession from the northern rhomb into the southern with a view to performing various religious functions. There is, however, no proof to substantiate this conjecture, unless one takes into account such seals as the one from Mohenjo-daro which, as far as one can make out, depicts the following (pl. XIVC). In the upper register there stands, within a U-shaped frame of pipal twigs, a deity wearing the typical horn-*cum*-feather headgear. Kneeling before the deity is a devotee and behind him an animal presumably brought as an offering (for sacrifice). In the lower register there are seven figures marching in close proximity to one another, as if in a procession. They wear a tailed headgear — a symbol of the then priesthood(?).

The fortification of the Citadel ended at a certain alignment on the south, but unfortified habitation continued even beyond that. Though only minor tapping was done in this area, surface indications were that the houses over here were not as large as in the Lower Town. At the southern end of this unfortified habitation a large quantity of pottery was also noticed. It is likely, though only a regular excavation can bear it out, that over here lived potters and other workmen whose services were utilized by the occupants of the Citadel and the Lower Town. What such a layout at Kalibangan — a Citadel, a Lower Town, both fortified, and an unfortified area having probably smaller residences — may mean in terms of social stratification will be discussed later, along with the data from other sites as well (Chapter XII).

In the context of the fire-altars mention must be made of another mound (KLB-3) located about 80 m to the east of the northern part of the Lower Town. This is rather low and small and has considerably been despoiled. However, on it there was a large mud enclosure within which there were four or five fire-altars. There seem to have been no regular residential houses, suggesting that this complex may have been used exclusively for worship. How does one explain another centre for community worship when there was already one in the Citadel? Were these two areas meant for two different sets/classes of people — the one within the Citadel for the elite and this one for the humbler folks? Or was any temporal element involved, the KLB-3 centre having come up later? Only further work may be able to shed more light on the issue. About 200 m to the west-southwest of the Citadel was the burial ground. Here, besides the usual extended inhumation burials, two other kinds of funerary pits were met with. (See Chapter X for illustrations and other details.) In one type there were all the relevant grave-goods — pottery, bronze mirror, etc., laid in circular pits. No human skeleton was found. However, among the pottery there was in each case a large jar dominating the complex (pl. XVIB). It was thought that the jars might contain ash, charred bones, etc., suggesting a post-cremation burial. But nothing of the kind turned up. Maybe these were cases of symbolic burials, the persons concerned having died elsewhere. In the other category, the pit was of the same type as in the usual extended burials. Again, there was no skeleton; but pottery, yes. An unusual feature in many examples of this category was the occurrence of bands of sand and clay, suggesting that the pit had remained open. Could it be that the dead were first placed in these pits and after certain ceremonies had

been performed, were removed to the regular pits after a brief interval — say a couple of days? In any case, the feature of sand-and-clay-bands has got to be explained.

(vi) BANAWALI

Further up in the Ghaggar valley, about 120 km northeast of Kalibangan and 220 km northwest of Delhi, lies another fairly well excavated site, viz. Banawali, in District Hissar, Haryana. Though there is no live stream close by, the dry bed of what is now known variously as the Rangoi, Sottar, Nali or Nadi may still be seen to the south of the site (fig. 6.8). It is thought to be the ancient Sarasvatī which, however, now disappears way up in the northeast.

The area covered by the ancient remains is roughly 400 m each way. Within the 8-m thick occupational deposits, three cultural periods were identified. From bottom upwards, these are: Period I, representing a complex of the same type as met with in Kalibangan Period I; Period II, belonging to the Mature Harappan Culture; and Period III, yielding the remains of a post-Mature phase (Bisht 1982, 1987, *IAR 1986-87* and *1987-88*).

While dealing with the antecedents of the Mature Harappan Culture we already discussed the various cultural constituents of Period I which was further divisible into A, B and C. To recall an important aspect, IA had no fortification around the settlement. The same came up in IB. By IC, the concept of dichotomy of the settlement, viz. a 'Citadel' and a 'Lower Town', also came into being. The houses were all through oriented along the cardinal directions. While in Subperiods IA and IB the bricks were made in the ratio of 3:2:1, in IC these were also made in the typical Mature Harappan ratio of 4:2:1. Thus, by IC the stage had been set for the emergence of the Mature Harappan Civilization.

However, the Mature Harappan layout of Banawali slightly differed from that of Kalibangan. Here the Citadel or Acropolis was not detached from the Lower Town. It lay within the overall fortified area within which the Lower Town was also located (fig. 6.8). At the same time, the Citadel also had its own fortifications, there being a common wall on the southern side. On plan too, the Banawali Acropolis had its own identity. With the aforesaid common wall as the base, the remaining part resembled a semi-ellipse, quite unlike what obtained at Harappa or Kalibangan. Having been built over the remains of Period I, the Acropolis occupied a level higher than that of the Lower Town, as if to oversee the latter. The thickness of the Citadel-walls varied from 5.4 m to 7 m.

Inside the Citadel, a few streets with flanking houses have been identified. These had a roughly north-south and east-west orientation, thus forming a grid-pattern on plan. One street also ran along the inner side of the Citadel wall, of which a counterpart existed on the outside, falling within the Lower Town. No major gateway to the Citadel has yet come to light since only a part of the fortification-wall has been exposed. At the point where the eastern wall curved in and turned to the northwest, there was a narrow opening through which passed a drain of kiln-fired bricks, presumably meant for the discharge of storm-water. This opening lay in line with a west-east street of identical width. To the north of this opening, the fortification-wall was provided with a squarish bastion on the exterior. A similar bastion was also exposed along the southern part of the wall. Near the apex of the ellipse a 1.5-m wide ramp, laid with kiln-fired bricks, was found leading from the Lower Town into the Citadel.

Unlike the outline of the Citadel, that of the Lower Town was quadrangular. It has been exposed in fair lengths on the eastern side where squarish bastions on the exterior have been identified. But what is more note-

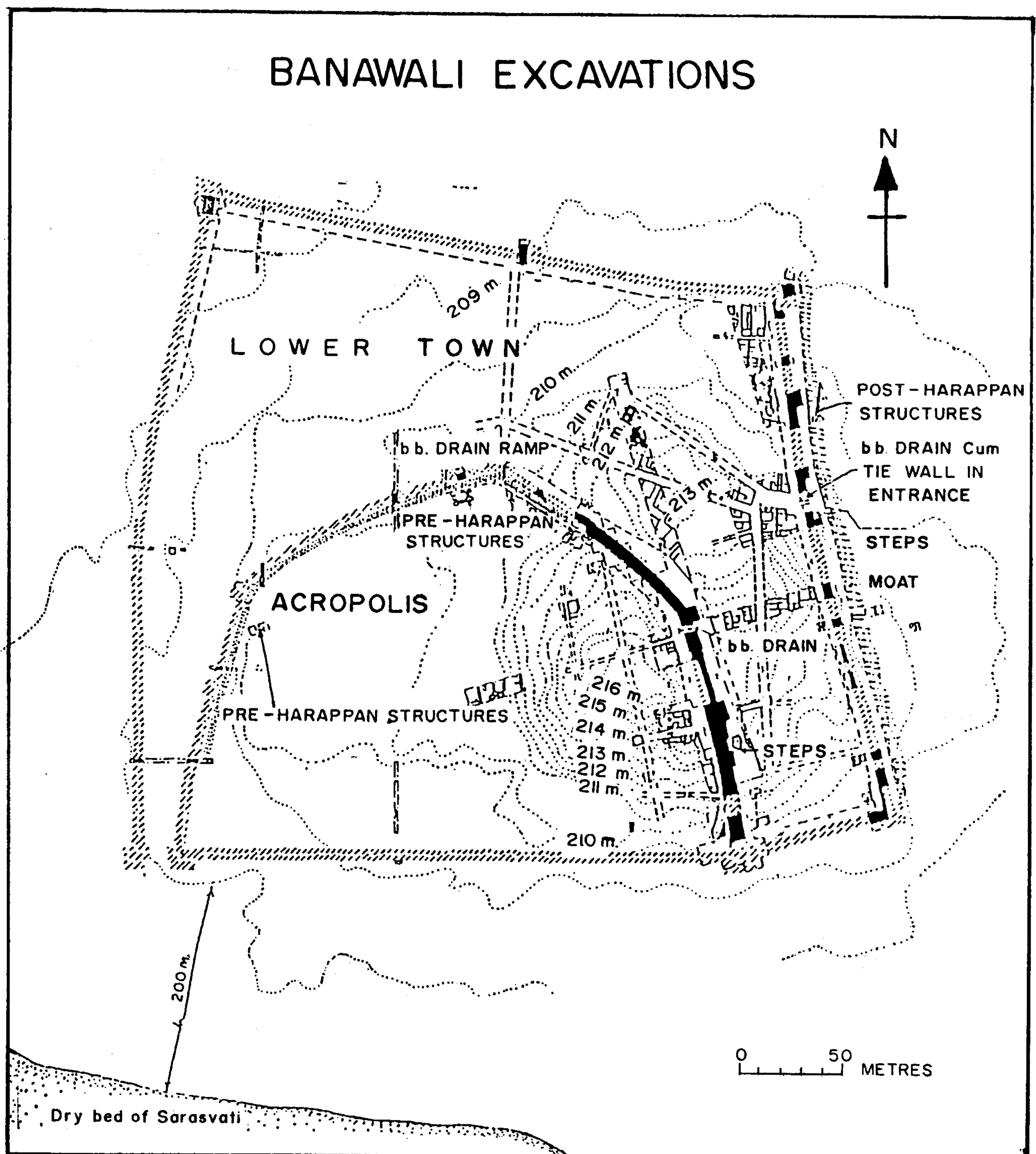

BANAWALI EXCAVATIONS
N
LOWER TOWN
209 m
210 m
211 m
212 m
213 m
POST-HARAPPAN STRUCTURES
bb. DRAIN RAMP
bb. DRAIN Cum TIE WALL IN ENTRANCE
PRE-HARAPPAN STRUCTURES
STEPS
MOAT
ACROPOLIS
bb. DRAIN
PRE-HARAPPAN STRUCTURES
216 m
215 m
214 m
213 m
212 m
211 m
STEPS
210 m
200 m
0 50 METRES
Dry bed of Sarasvati

Fig. 6.8

worthy is that along a part of the exterior of the fortification-wall a moat has also been identified (pl. XXXVIB). If it really ran all along the fortifications, it does add a new dimension to the strategy of the Harappans in regard to their defence-system. The river was, of course, there to provide ready water-supply.

In the northern half of the above-mentioned eastern wall there was an entrance. On the inner side of this entrance there was a wide 'open' space (a piazza?) at the western end of which three streets, one going southwards, another westwards and the third to the northwest, formed a trijunction (pl. XXXVIIA). The western street, around the middle of its length, was met by a south-north street emanating from the Citadel ramp referred to above. Along the interior of the eastern fortification-wall of the Lower Town there was a north-south street which passed *via* the eastern end of this open space. Thus, one could go in five different directions from this piazza. The bigger streets measured 5.4 m in width which, interestingly, fits into the width-scheme of the Kalibangan streets.

Many of the Banawali people were well-to-do, as indicated by the sizes and contents of their houses. With a central courtyard, the houses had a large number of rooms around it. Sometimes the rooms were paved with mud bricks. In the case of one house, the toilet 'was provided with a wash basin placed on a high place in a corner near the drain which carried off the waste water into a sullage jar placed outside the street' (Bisht 1982: 117). This particular house seems to have belonged to a rich merchant as it yielded seals and weights. Another big house may have been owned by a jeweller since from it were recovered a large number of beads variously of gold, lapis lazuli and carnelian (etched ones). Tiny weights found in the same house may have been used for weighing these precious commodities. The discovery of a 'touchstone bearing gold streaks of different hues' is of great interest since it indicates that gold specimens were tested for their purity, as is done even today.

Many of the houses had fire-altars of the type found at Kalibangan. However, the association of fire-altars with an apsidal structure has set some scholars thinking about the possibility of the latter having been some sort of a temple (pl. XXXVIA). An interesting feature noticed at Banawali was the presence of alcoves, varying from 1 x 1 m to 1 x 2 m and set within the thickness of the walls. The construction of platforms or *chabūtarās* adjacently outside the houses was a common feature at Banawali, as at Kalibangan. Altogether six structural subperiods were noted, but, again, as at Kalibangan, there were no encroachments on the roads throughout the occupation of the site, which speaks for a well-organized civic administration.

The residential houses as well as the fortifications were all made of mud bricks, the difference, however, was that whereas in the former case the brick-sizes were relatively small, viz. from 24 x 12 x 6 cm to 32 x 16 x 8 cm, in the latter these were larger, viz. from 40 x 20 x 10 to 50 x 25 x 12.5 cm. The use of kiln-fired bricks was limited to wells, bath-pavements and drains.

The pottery recovered from Period II was typically Mature Harappan though, as might be expected, many of the forms and features of the preceding period did continue. A ceramic adjunct, however, was that of the Bara-type pottery, which constitutes a noteworthy feature of the Harappan sites in the upper Ghaggar-Sarasvatī and Sutlej basins.

Banawali has been quite rich in antiquities of all sorts — seals, sealings, weights, beads, bangles, etc. to some of which a reference has been made earlier. However, an interesting observation made by the excavator is that the seals 'have only come from the Lower

Town and not the Citadel' (Bisht 1982:119). Unless the Banawali situation is attributed to a chance of discovery in one case and lack of it in the other, the matter requires to be examined in depth in order to determine the role of the inhabitants of the Citadel, viz. whether they participated or not in trade or similar activities.

The site has yielded a large number of weights in small denominations. Two of these weigh around 0.216 grams and 0.072 grams, which is respectively six and two times the average weight of a rice grain, viz. 0.036 grams. This evidence may uphold the view (in Marshall 1931:596) that the Mature Harappan system of weights was founded on rice grains. But the question is: exactly when and where did the Harappans begin to cultivate rice? And how long did it take this grain to become so common as to be adopted as a basal unit for their weight-system? The matter does indeed require further research.

Amongst the terracotta objects two items deserve special mention. One of them is a complete model of a plough (pl. XXXVIIB). It is important since doubts had been raised about the identification of a fragmentary example of a plough discovered earlier at Mohenjo-daro. The other item of interest constitutes female figurines. In this context, it needs to be stressed that whereas at Kalibangan no female figurines were found, the same occurred at Banawali (pl. XLVIB), indicating that the cult of the Mother Goddess, so vividly exemplified at Harappa and Mohenjo-daro, was not altogether absent from the Ghaggar-Sarasvatī area.

After a total habitational deposit of about 4.5 m, the Mature Harappan occupation came to an end. The reasons for this termination are not known. The next occupation (Period III) came up after some time the duration of which is also difficult to assess. By now all that characterized the Mature Harappan had disappeared: there was no town-planning, no fortification, no seals, no weights and no use of script. The new settlement came up initially against the eastern wall of the Mature Harappan defences. However, as time passed it encroached to some extent on the eastern part of the mound itself.

The houses were now made not of bricks but of mere rammed clay, though still oriented along the cardinal directions. Within the houses were noted corn-bins made of clay and lime, *tandūrs* and underground cylindrical silos, the last two items recalling their counterparts of the pre-Mature Harappan times. This resurgence of some of the earlier features is also indicated by the pottery. However, a distinctive aspect of the ceramics was their oily touch and glossy appearance. The colour of the slip in most of the cases was either 'from subdued plum-red to purple or from glowing buff to bright orange'. There was also a marked change in the features or forms of the pottery. For example, in the case of the dish-on-stand, the rim curved out pronouncedly and showed even a distinctive droop. The presence of incised patterns on the exterior was another distinctive feature. It links up the Banawali pottery with that of Bara, a site on the upper Sutlej and not far off from the well-known Harappan site of Rupar (now known as Rupnagar). A kind of burnished grey ware was also included in the pottery repertoire. The excavator further refers to the presence of 'Cemetery H pottery, or its inspired forms, designs or features' in Period III, but fuller details are needed to establish the same.

In terms of antiquities, two items deserve special mention. First, there are the faience ornaments — beads, rings, pipal-shaped earrings, bangles and anklets, which occur in large numbers, indicating that this industry was still going strong. Secondly, attention may be drawn to a terracotta object which has a square base and whose sides taper as they go upwards, finally to culminate in a two-pronged horn-like top (fig. 14.1). It

needs to be added that examples of this peculiar object have been found at many other sites in the upper Ghaggar-Sutlej basins (fig. 14.2), in a chronological horizon similar to that of Banawali.

(vii) LOTHAL

Lothal has given to the Harappan Civilization something which no other site has, viz. a dockyard. While it is easily understandable that the hinterland sites just could not do that, even those located on or within easy reach of the seacoast, such as Bhgatrav, Mehgam, Kanjetar, etc. in Gujarat itself or Allahadino, Balakot, Sotka Koh and Sutkagen Dor in Sindh and Baluchistan have not produced evidence of any noteworthy arrangements for the berthing of ships, or for the loading and unloading of goods or for warehousing them as Lothal has, though no doubt some of these sites must have participated in the sea-trade that went on between India and Iraq, *via* Oman and Bahrain during the Mature Harappan times. Since no major Harappan site along the Indian seacoast south of Lothal has yet come to light, it is just possible that Lothal may have played the role of an *entrepot,* clearing goods imported from the west and shipping out the indigenous ones.

At a distance of about 80 km southeast of Ahmedabad, Lothal lies between the Sābarmati and its tributary, the Bhogāvo, though neither flows past it. There is, however, evidence to suggest that in ancient times a river did pass by the western fringe of the settlement (fig. 6.9). It seems to have joined the Bhogāvo which in turn met the Sābarmatī. Since the last-named river falls into the Gulf of Cambay, an inlet of the Arabian Sea, a link between Lothal and the sea in ancient times seems to be indicated.

As of today, the mound stands to a height of about 5.5 m above the surrounding plains, but excavations have revealed that occupational strata go down by another 3 m. This establishes the silting up of the region over the millennia and hence the exact extent of the settlement is difficult to assess. However, explorations have indicated the presence of Harappan remains at quite some distance to the east and southeast. It is likely that these outlying areas housed those who, as at Kalibangan, lived outside the 'Citadel' and the 'Lower Town' and may have belonged to a less privileged class.

The excavations at Lothal were carried out by S.R. Rao between 1955 and 1962 (Rao 1979 and 1985). He has divided the total occupation at the site into two main periods called, from bottom upwards, A and B. These are further divided into phases: Phases I-IV falling in Period A and Phase V in Period B. Phase I represents the beginning of the site when two distinctive ceramics, viz. micaceous red and black-and-red wares, were, in use. During Phase I itself, the Harappans began to appear on the scene, but it was a little later (Phase II) that they laid out their township. This layout, however, was in marked contrast to what was noticed in the case of Kalibangan. Whereas at Kalibangan the Citadel and the Lower Town occupied two separate areas, in the case of Lothal the Citadel part, called the 'Acropolis' by the excavator, lay within the overall area enclosed by the town-wall. Also, there was no separate wall around the Acropolis as, for example, at Banawali. However, the Acropolis maintained its separate identity due to its location on a high mud-brick platform and also special structures thereon.

Forming a near-rectangle on plan, the town covered an area measuring approximately 280 m north-south and 225 m east-west. It was surrounded by a wall essentially made of mud, at places reinforced with mud bricks but rarely with kiln-fired bricks. It had an average width of 12-13 m. However, on the eastern side it was 21 m wide, since its top, abutting the dockyard, seems to have func-

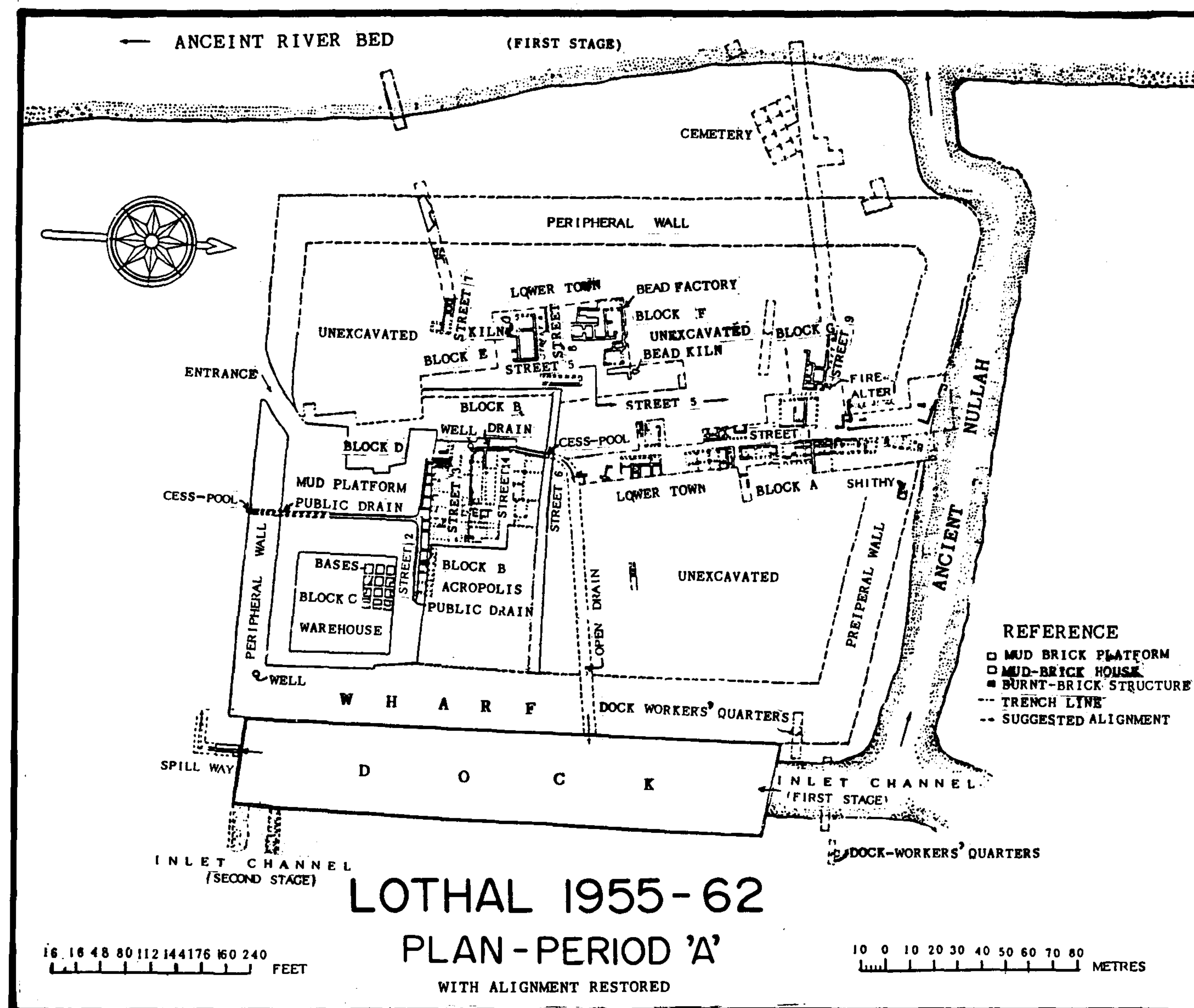

ANCEINT RIVER BED
(FIRST STAGE)
CEMETERY
PERIPHERAL WALL
LOWER TOWN
BEAD FACTORY
BLOCK F
UNEXCAVATED
BLOCK G
BEAD KILN
KILN
BLOCK E
STREET 5
STREET 7
STREET 8
STREET 9
ENTRANCE
BLOCK B
WELL
DRAIN
CESS-POOL
BLOCK D
MUD PLATFORM
PUBLIC DRAIN
STREET 6
LOWER TOWN
BLOCK A
SHITHY
FIRE-ALTER
STREET
STREET 3
STREET 4
STREET 2
BASES
BLOCK C
WAREHOUSE
BLOCK B
ACROPOLIS
PUBLIC DRAIN
OPEN DRAIN
UNEXCAVATED
PERIPHERAL WALL
PREIPERAL WALL
ANCIENT NULLAH
WELL
W H A R F
DOCK WORKERS' QUARTERS
SPILL WAY
D O C K
INLET CHANNEL
(FIRST STAGE)
DOCK-WORKERS' QUARTERS
INLET CHANNEL
(SECOND STAGE)
REFERENCE
MUD BRICK PLATFORM
MUD-BRICK HOUSE
BURNT-BRICK STRUCTURE
TRENCH LINE
SUGGESTED ALIGNMENT
LOTHAL 1955-62
PLAN-PERIOD 'A'
WITH ALIGNMENT RESTORED
16 16 48 80 112 144 176 160 240
FEET
10 0 10 20 30 40 50 60 70 80
METRES

Fig. 6.9

tioned as a wharf as well. Its available height ranges between 1.8 m and 2.4 m. An entrance to the township was also discovered about the middle of the southern wall. The excavator is of the view that the peripheral wall was provided against sheet-flooding to which the region is prone, rather than as defences.

Oriented along the cardinal directions, the houses lay in blocks which were separated one from the other by means of streets and lanes. The widest street measured 12 m across, while the narrowest one 3.6 m. Running along some of the streets there were underground drains constructed with kiln-fired bricks. During the Mature Harappan times care was taken not to allow any encroachment on the streets, but later on, particularly in Phase V things degenerated. Phase III appears to have been the most prosperous one. Thus, some of the houses during this phase were larger than those in the other phases. These consisted of four to six living rooms, a spacious courtyard and verandahs. Baths were duly paved with kiln-fired bricks. Some of the houses have yielded remains of fire-altars. Some houses belonging to special artisans, e.g. coppersmiths, bead-makers, etc., have also been identified on the basis of kilns (cf. pl. XLB), crucibles, raw material, etc. The excavator also identified one of the streets as the Bazar Street, having shops on both sides.

Located in the southeastern part of the overall area enclosed by the peripheral wall, the Acropolis complex was distinguished by its eminence provided by the underlying platforms. These formed a rough trapezium on plan, whose eastern and western sides measured about 118 m each and the northern and southern ones 125 m and 113 m respectively. The maximum available height was around 3.5 m. The platforms were constructed with a core of mud encased by thick mud-brick walls. There were two noteworthy parts, viz. the residential buildings of those who administered probably the entire settlement, and a close by warehouse.

Unfortunately, of the structures that comprised the residential complex very little has survived because of the heavy floods which seem to have been responsible for the gradual degeneration and subsequent desertion of Lothal. However, the available evidence suggests the existence of at least three east-west streets, two east-west lanes and three north-south lanes, forming the usual grid-pattern. While the streets measured from 3 m to 6.5 m in width, the lanes averaged 2 m. Noteworthy in the southern part was a set of twelve bath-pavements, the runnels from which led the water to an east-west street-drain (pl. XLA). However, because of the very meagre evidence regarding the enclosing walls, etc., it is not possible to say if the bathing pavements represent an equal number of individual tenements or they constituted a single unit meant for some specific religious purpose, such as ceremonial ritual bathing. The situation is no better in so far as the central and northern parts are concerned, though a few odd rooms and verandahs are identifiable. Here again, the drainage system is very conspicuous. The runnels from the houses fell into an east-west drain which took a northward turn skirting a house-block. The drain gradually descended (this was achieved by providing drops at intervals) finally to discharge into a big cesspool at the foot of the massive platform on which stood the Acropolis.

To the south of the residential complex referred to above and separated from it by a street was the warehouse. It consisted of a basal mud-brick podium, measuring 48 x 40 x 4 m, over which there stood square blocks, again of mud bricks, each measuring 3.6 x 3.6 x 0.9 m. These lay in a grid pattern, oriented along the cardinal directions with the intersecting passages measuring 1.2 m in width. Only twelve of these blocks, in three rows of

four each, have survived (pl. XXXVIII). The excavator, however, is of the view that originally there may have been sixtyfour in eight rows of eight each. Be that as it may, it seems likely that over these blocks there stood a superstructure of timber (fig. 6.10) which has since disappeared — probably burnt down as indicated by the occurrence of ash, a charred log, etc. However, what is no less significant is the fact that amidst this burnt debris there lay sixtyfive terracotta sealings bearing on one side the impressions of woven fiber, knotted cord, etc. and on the other those of the Harappan seals. All this suggests that herein lay certain goods, duly packed and sealed, which got burnt down. The close proximity of the dockyard would suggest that this building may have functioned as a warehouse for the temporary storage of incoming and outgoing goods.

Immediately to the east of the township there was a trapezoidal basin enclosed by walls of kiln-fired bricks (pl. XXXIXA). While the western and eastern walls of this basin measured respectively 215 m and 212 m in length, those on the north and south measured respectively only 37 m and 35 m. At the foundation-level the width of the western wall was 1.8 m but in other cases it was 1.5 m. However, at the top-level the width was almost uniformly a little over one metre in all the cases. The extant height, in the southwest corner, is 3.3 m.

In these walls two inlets for entry of water were noticed, one on the northern side and the other on the eastern, measuring respectively about 12 m and 7 m in width (fig. 6.9). The basin functioned as a dockyard and, according to the excavator, the entry of boats into it in the first stage was through the northern inlet and in the second through the eastern. Along the western side of the settlement, as already stated, there flowed a river which was joined by a nullah running along the northern side. The boats took this route for entering the dock. In the second stage, the river shifted its course about a mile to the east and thus a channel was dug to connect the river and the dockyard, providing also the aforesaid inlet in the eastern wall. For the exit of excess water there was a spill channel in the southern wall. The boats came up following the high tides, were berthed in the dock for as long as necessary and returned to the sea along with the ebb of a subsequent tide. To the west of the basin there was the wharf for loading and unloading of goods, which, as mentioned earlier, were temporarily lodged in the warehouse before their final disposal.

Ever since the discovery of this walled basin, debate has been going on about its actual use. This is not the place to discuss the various views and counter-views at length. It would perhaps suffice to say that besides the excavator's stand mentioned above, there is another noteworthy view, stating that this basin was a tank for storing potable water (Leshnik 1968). The water, according to this view, was drawn out with *shadufs* in which the stones found in the basin had been used. Very briefly, there are some points which tend to indicate that it may not have been a freshwater tank: viz. (i) presence of estuarine shells in the silt of the basin; (ii) salinity in that silt; (iii) lack of steps, normally met with in water-tanks; (iv) presence of a river alongside the settlement, which could easily have met a major part of the water-supply; (v) existence of wells within the township; and (vi) last but not least, the discharge of a city-drain into it (fig. 6.9).

The excavator refers to a dock at Gogha, where a similar arrangement obtains today. He also mentions a local tradition according to which boats used to ply close to Lothal a hundred years ago. He then draws attention to certain stones which he found placed over an area where, on excavation, he found the warehouse. These stones were being worshiped as *Vānuvatīmātā*, a goddess of sea-

LOTHAL : WAREHOUSE AND ENVIRONS

(AXONOMETRIC VIEW RECONSTRUCTED)

0 5 10 15 20 25 METRES · 0 16 32 48 64 80 FEET

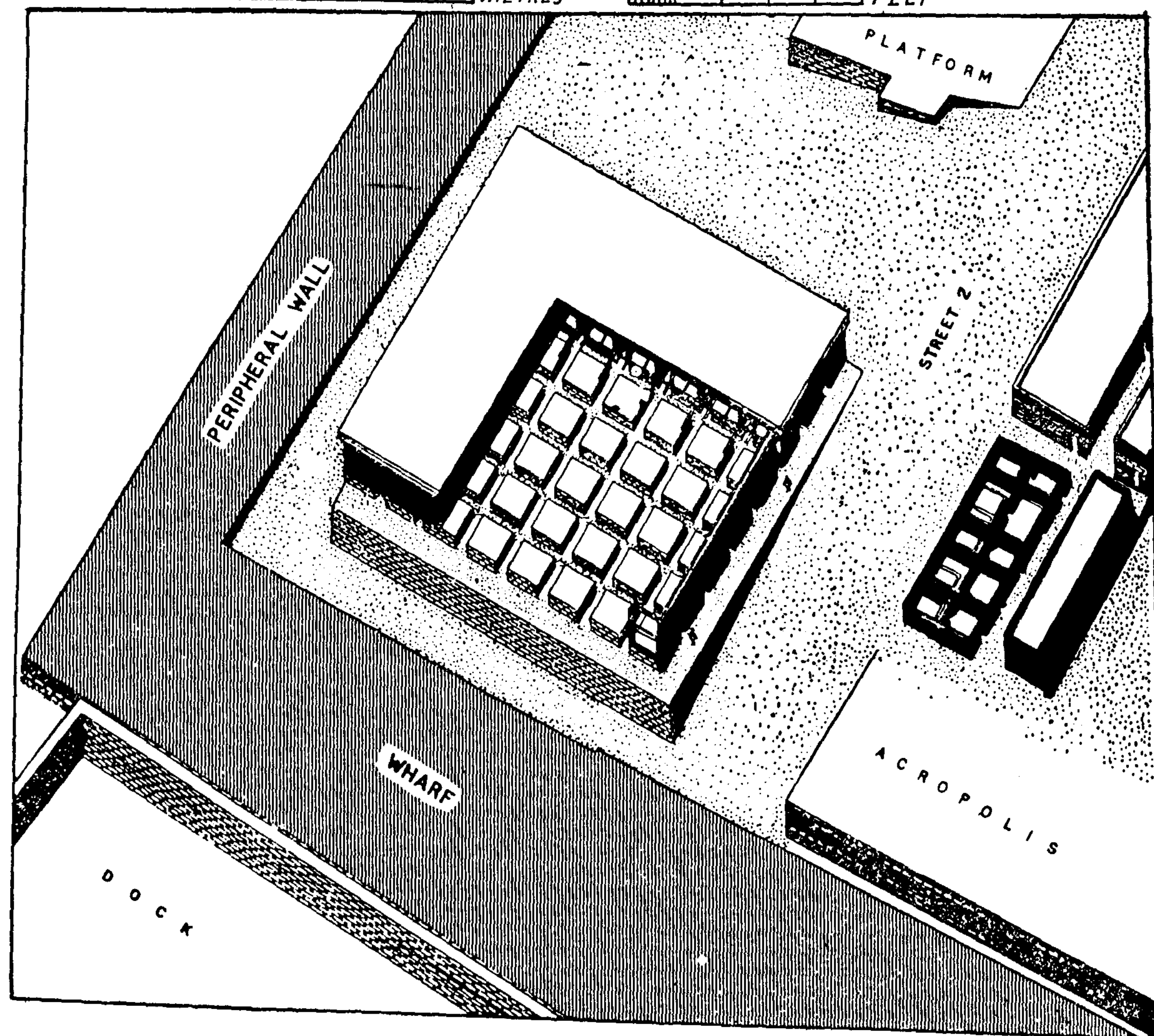


Fig. 6.10

farers. The deity is worshipped by the same name at many other ports in Gujarat. Finally, he quotes (Rao 1979: 129) the expert opinion of Shri H.P. Oza, the then (1960) Director of Ports, Gujarat State. According to Oza, 'It is therefore consistent to conclude on the basis of topo-sheet and our experience that a sea-passage to Lothal approachable at high tide existed. ... The trapezoid brick-walled enclosure could not be meant for storing potable water. The inside face of the wall otherwise would have been sloping with steps. The alternative is that an artificial enclosure was constructed for shipping for comfortable working of cargo and safety of boats.' The balance of arguments, thus, is in favour of this basin having been used as a dockyard rather than a mere tank for storing potable water.

To the west of the town, between the peripheral wall and the river, lay the cemetery (fig. 6.9). While most of the burials were in the usual Harappan style, three deserve special mention because these contained two skeletons each. The significance of these will be discussed later when we deal with burial practices of the Harappan people as a whole (Chapter X).

The site is very rich in all kinds of Mature Harappan antiquities — seals, sealings, weights, measures, terracottas, copper/bronze and gold objects, varieties of beads, etc. However, in the context of the dockyard, special attention may be drawn to a seal (pl. XXXIXB) which, being of the typical Persian Gulf style, provides evidence of maritime trade with western Asia.

(viii) SURKOTADA

Located on the mainland and several islands in Kutch, there are quite a few Mature Harappan sites of which Surkotada and Dholavira deserve special mention. The Rann of Kutch, which is now largely silted up, seems to have been in ancient times an inlet of the Arabian Sea and thus coastal traffic between the Harappan ports in Sindh and the Kutch sites could easily have been possible. Surkotada is situated at a distance of about 160 km northeast of Bhuj. The excavations over here have brought to light a continuous occupation of the site, divided into three subperiods, called IA, IB and IC (Joshi 1990). Amongst the finds from Subperiod IA mention may be made of a typical Mature Harappan seal, beads and long blades of chert. However, because of the presence even in Subperiod IA of the Harappan goblet, which appears to be a somewhat latish type amongst the Mature Harappan ceramics, it would seem that it was not at their earliest stage that the Mature Harappans settled here. The IA strata have also yielded some polychrome non-Harappan pottery, pointing to the existence of an earlier element in the region, though no site exclusively with this ware has so far been identified.

Subperiod IB is distinguished from its predecessor on account of the profuse occurrence of a coarse red ware, sometimes painted and even incised, though it had no doubt started appearing from the middle levels of Subperiod IA itself. Noteworthy amongst the finds were a flat celt and a chisel, both of copper. The end of Subperiod IB is marked by the occurrence of a thick layer of ash, suggestive perhaps of a conflagration. There was, however, no break of occupation, since the Harappan elements, including even an incised terracotta seal, continued into Subperiod IC. At the same time, could this conflagration in any way have been associated with the advent of a new people using the White-painted Black-and-red Ware which made its appearance towards the end of Subperiod IB and became more prolific in IC? This ware has similarities with that from Ahar in Rajasthan and may indicate some kind of communication with that region. Also found in the IC levels were stud-handled bowls which, together with a subsequent Lustrous Red Ware (not found at Surkotada), and the aforesaid White-painted Black-and-red Ware, formed

distinctive elements of the post-Mature Harappan ceramic industries in the region to the south, constituting mainland Gujarat and Saurashtra. Perhaps climatic changes and the silting up of the inlet of the sea, which may have been caused by the detrital material brought down by the rivers from the peripheral regions, may have on the one hand snapped relations with Sindh and on the other forced the Kutch Harappans themselves to move to more congenial regions to the south and east.

The layout of the settlement at Surkotada is of special interest since it does not follow the pattern of any of the sites mentioned earlier, viz. Mohenjo-daro, Harappa, Kalibangan, Banawali and Lothal. It consists of two juxtaposed and fortified parts, each a square and having almost the same dimensions, viz. about 60-65 m internally. The orientation is roughly along the cardinal directions, the combined longer axis being east-west (fig. 6.11). Of the two parts, that on the west has been designated by the excavator as the 'Citadel' and the eastern one as the 'Residential Area'. Qualitatively, the main difference between the two parts seems to be that the houses in the Citadel were built over a platform of rammed earth and were bigger than those in the Residential Area, which had no underlying platform.

Practically the whole length of the southern fortification-wall has been excavated, bringing to light two gateways, one leading into the Citadel and the other into the Residential Area. Another gate, smaller in size, pierced the intermediary wall, providing intercommunication between the two parts. Built right at the beginning of the occupation in Subperiod IA, the defences continued all through, of course with renewals and additions from time to time. The core of the fortification in Subperiod IA was essentially of mud and mud bricks, having an average width of about 7 m. To it a veneer of stone-rubble was provided, though not to the full height. There is also evidence of mud plastering. In Subperiod IC, however, the fortification-wall around the Citadel (pl. XLIB) as well as the Residential Area was reconstructed in stone, though the width was reduced to 3.5-4 m. There were two other noteworthy features, viz. the provision of a rectangular barbican with a ramp, steps and guard-rooms in front of the southern gate of the Citadel (pl. XLIA) and the addition of rectangular bastions at the corners.

One does not know if these two short squares, accounting for a total area of about 130 x 65 m, represent the entire habitation at Surkotada or there is more of it in the neighbourhood. If indeed there is none, then one wonders whether such a small complex be treated as a township on the lines of Mohenjo-daro, Kalibangan, Lothal, etc. or there was some other purpose in this kind of a settlement. For example, could it have been an essentially trading or administrative centre? There is no clear answer at the moment.

A cemetery located to the south-west of the fortified area and dating back to Subperiod IA itself calls for special attention, since it has brought to light a new kind of burial (pot-burial with cairn and even capstone) not met with at other Harappan sites. It would be dealt with in some detail later when burial practices of the Mature Harappans are discussed (Chapter X).

Yet another noteworthy point about Surkotada is the occurrence of a few bones of the horse (*Equus Caballus*) not found in the northern sites like Mohenjo-daro, Harappa, etc. However, a terracotta toy representing a horse has been reported from Lothal.

(ix) DHOLAVIRA

Dholavira is located on one of the islands surrounded by the Rann of Kutch. Though the

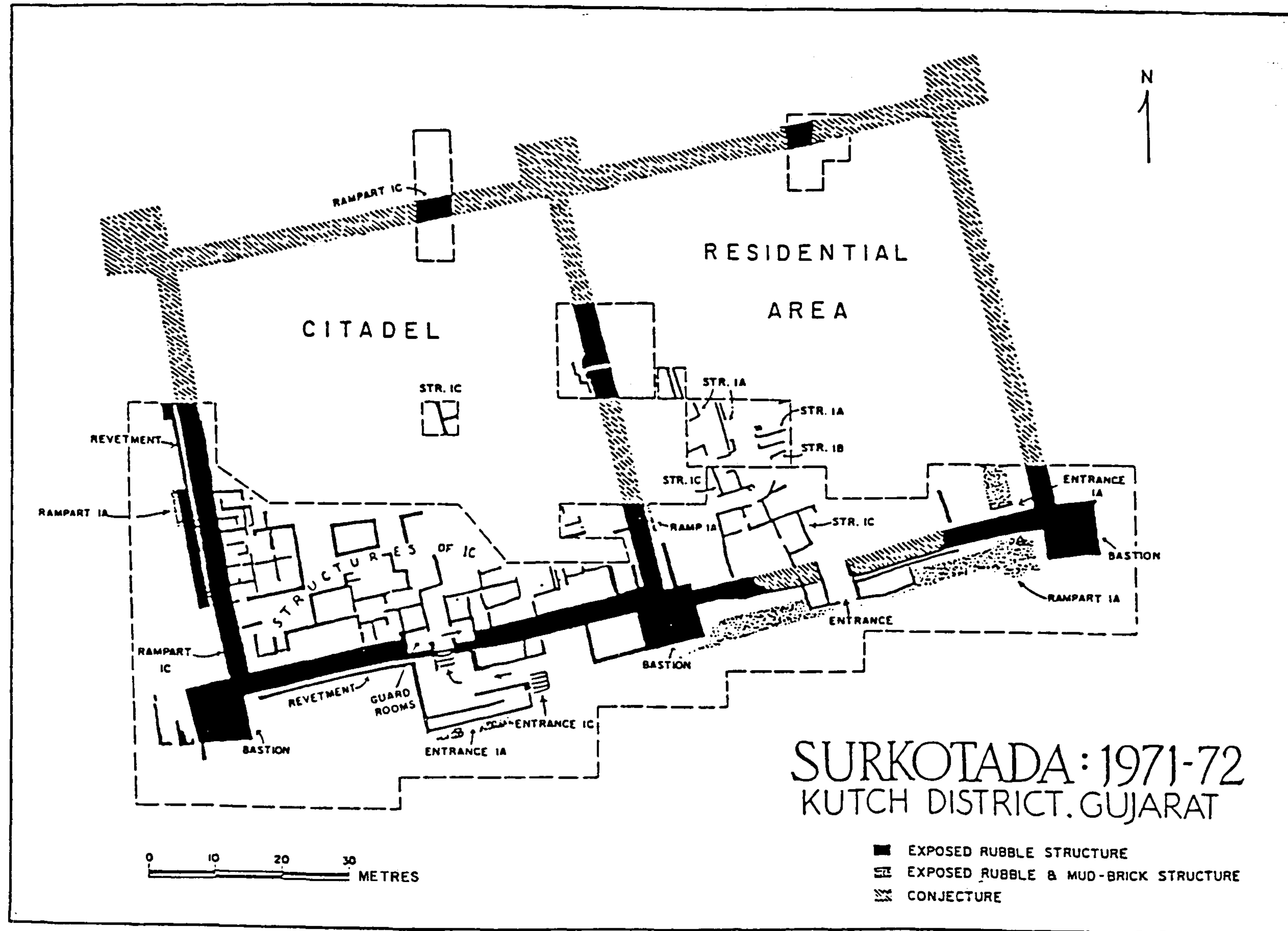

N
RAMPART IC
RESIDENTIAL
AREA
CITADEL
STR. IC
STR. IA
STR. IA
STR. IB
STR. IC
STR. IC
REVETMENT
RAMPART IA
RAMP IA
STRUCTURES OF IC
ENTRANCE IA
BASTION
RAMPART IA
ENTRANCE
BASTION
RAMPART IC
REVETMENT
GUARD ROOMS
ENTRANCE IC
BASTION
ENTRANCE IA
SURKOTADA : 1971-72
KUTCH DISTRICT. GUJARAT
0 10 20 30
METRES
EXPOSED RUBBLE STRUCTURE
EXPOSED RUBBLE & MUD-BRICK STRUCTURE
CONJECTURE

Fig. 6.11

fieldwork over here is still (1994) in progress, it has nevertheless brought to light a town-plan of the Mature Harappan Civilization, which is unparalleled anywhere on the sub-continent (Bisht 1989, 1991, 1994a and 1994b). At its fully developed stage, the settlement had three pronounced parts which the excavator has called the Citadel (with its two sub-parts — Castle and Bailey), the Middle Town and the Lower Town, all interlinked within an elaborate system of fortifications (fig. 6.12). There is also ample evidence of habitation outside the fortifications, which may be termed as a suburban component. Vertically, the sequence begins with a short pre-Mature Harappan settlement (Stages I and II of the excavator), followed by a long period of the Mature stage (Stages III, IV and V) and ending up in a post-Mature Harappan Phase (Stages VI and VII) constituting Harappan survivals with some extraneous elements. We shall first deal with the cultural change (evolution and devolution) and then pass on to the details of the town-planning.

The first settlement (Stage I), identified in three different trenches in the Citadel-area, accounted for a deposit of 60-70 cm. Right from the beginning the settlement was fortified. Made primarily of stone-rubble with occasional use of mud bricks, the fortification-wall measured over 11 m in width at the base. The mud bricks used in the fortifications as well as in the houses inside had the typical Harappan proportions, viz. 4:2:1 (36 x 18 x 9 cm). There is also evidence of copper-working during this stage, as indicated by the occurrence not only of finished objects but also of fragments of crucibles, globules of vitrified clay and chiselled stone blocks (probably used in the process of manufacturing) — all associated with a fireplace with lots of ash, metal-waste, etc. The pottery included a well-made ware with pinkish slip and incised decorations, as also wares with dull-brown, buff, and deep-black slips. Sometimes the surface had white-painted areas bearing simple designs in black pigment. As for the typical Mature Harappan pottery, one may note the presence of fragments of perforated jars and of dishes-on-stand. A few examples of the triangular terracotta 'cakes' were also noted. In Stage II, there were minor qualitative differences. For example, the pottery tended to be sturdier and the paintings thereon included naturalistic motifs. There was also an increase in the number of smaller artefacts.

By Stage III most of the Mature Harappan elements had made their appearance — weights, seals, script and the characteristic pottery-forms, though not in a big way. However, it needs to be added that in this stage the seals were without inscriptions but did have the animal figures. Stage IV represents the Harappan Civilization in its full bloom. The seals now had their usual inscriptions as well. Indeed, it is to this stage that the large inscription to be discussed in detail below may have belonged. Even the use of polished pillars — a rarity in Harappan architecture, is assignable to this stage. The thickness of the occupatioal strata ascribable to Stage IV is also the maximum, viz. around five and a half metres.

However, a kind of decline began to set in by Stage V. Although the typical Harappan artefacts continued as before, the maintenance of the structures and of the general layout showed a kind of loss of grip by the civic authorities. For whatever reason, the settlement was also deserted at least for some time.

When people reoccupied the site (Stage VI), there was a perceptible change in their material culture. For example, the seals now had only inscriptions but no figures. This was just the opposite of what had obtained in Stage III when figures appeared without inscription. However, the typical Harappan weights were there. While some of the Harappan pottery continued, there were other varieties too, such as the black-and-red

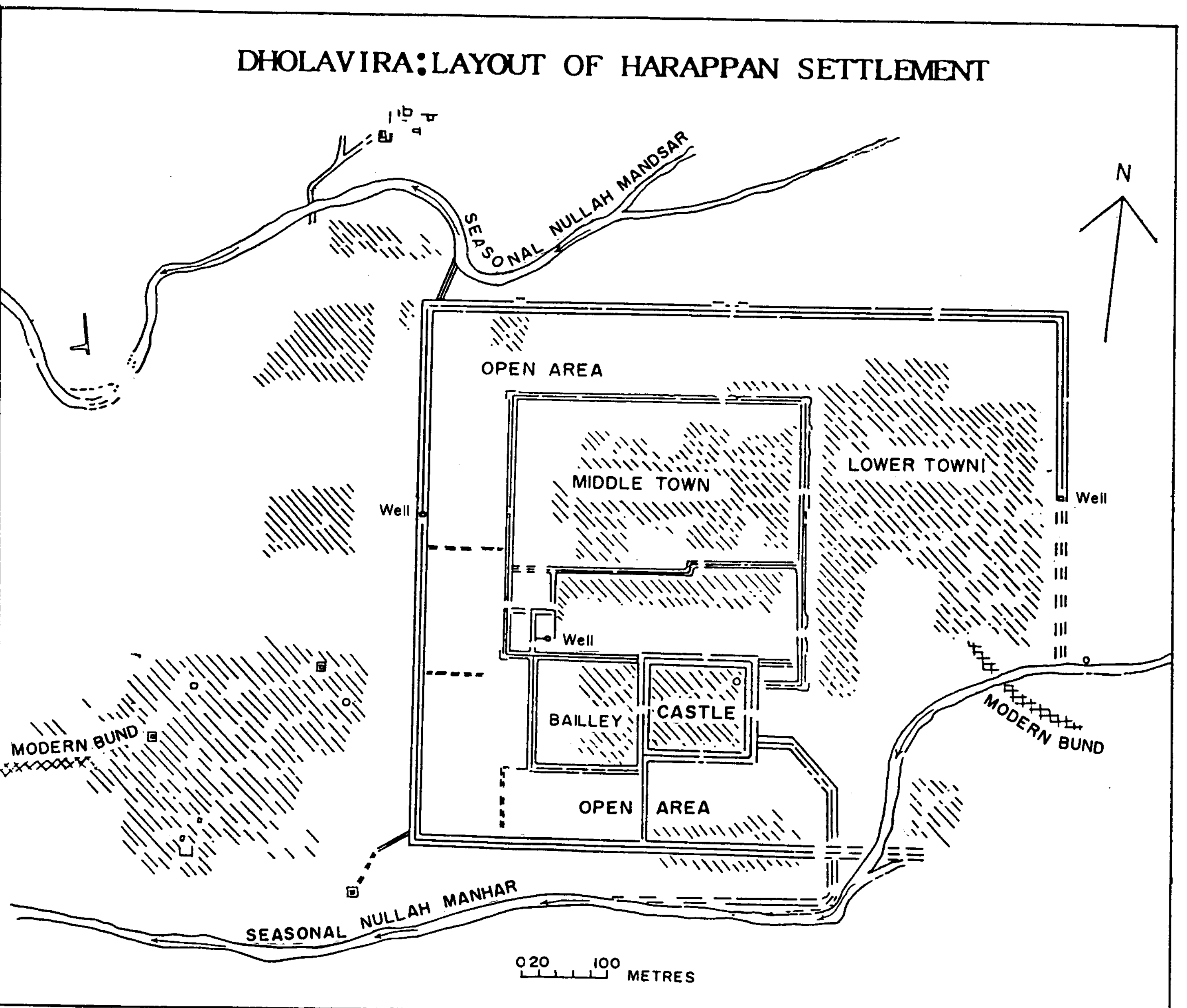

DHOLAVIRA: LAYOUT OF HARAPPAN SETTLEMENT
N
SEASONAL NULLAH MANDSAR
OPEN AREA
MIDDLE TOWN
LOWER TOWN
Well
Well
Well
BAILEY
CASTLE
OPEN AREA
MODERN BUND
MODERN BUND
SEASONAL NULLAH MANHAR
0 20 100 METRES

Fig. 6.12

and its associated wares found elsewhere in Kutch, Saurashtra and Gujarat. Some of the pottery also resembled that from Jhukar. The size of the settlement became smaller and the layout also differed. Once again, after a period of about a century the site was abandoned. The next reoccupation (Stage VII) was characterized by a different settlement pattern. The houses were now circular on plan and were largely constructed with bricks robbed from the earlier structures. Town-planning and drainage were things of the past. Urbanism had gone, yielding place to a rural scenario. However, the similarity of pottery between Stages VI and VII shows that the people belonged to the same stock.

We may now turn our attention to the layout of the township which took its above-mentioned elaborate shape by Stage III. To recall, there were three major constituents: a Citadel, a Middle Town and a Lower Town. The outermost walls which enclosed the entire complex formed a near-rectangle, oriented almost along the cardinal directions. Of these, the northern and western walls are intact on plan, measuring respectively about 770 m and 615 m in length. The southern and eastern walls are at present not traceable in the southeastern part where these seem to have been destroyed by a streamlet called the Manhar (fig. 6.12). It is not unlikely that those who planned the township deliberately enclosed a part of the streamlet. It brings down monsoon run-off from the hills on the north-east and the builders seem to have harnessed the monsoon-water to meet the needs of the population. (Even now this streamlet has been bunded for a similar purpose.) Also, there is another streamlet, called the Mandsar, which runs past the walls on the northwest. This too may have been utilized for similar ends, as indicated by a wall shooting off the north-west corner and running across this streamlet. The excavation has revealed the constructional details of the peripheral wall. It was made of mud bricks with additional use of stone-veneer at the corners or at strategic points. Gaps, indicative of gates, have also been noticed in the northern, western and southern walls. There is also evidence of square/rectangular (not circular) bastions at places. The Lower Town, the Middle Town and the Citadel were not planned in a concentric style, that is to say the Citadel did not form a central piece around which was located the Middle Town, followed by a similar disposition of the Lower Town, the whole complex being enclosed by the outermost city wall. Instead, the Citadel and the Middle Town were two separate entities but had one common wall in between them. Again, these units were not placed in the central part of the stage, but occupied a more westerly area, the eastern part being allotted to the Lower Town. Further, what is also noteworthy is that the areas between the outermost city walls on the one hand and the northern and western walls of the Middle Town, the western wall of the Bailey, and the southern walls of the Bailey and Castle, on the other, were left vacant. There are, however, certain cross-walls joining the outermost city walls and the aforesaid walls of the Middle Town, Bailey and Castle. Some of these walls were as much as 10-12 m in width. What exactly was the purpose in making such an arrangement it is difficult to guess. Bisht, the excavator, is of the view that these formed bunds for a series of tanks for water-storage and may have also functioned as causeways.

The Middle Town, which had its own fortification-walls on the north, east and west and shared a common wall with the Citadel-complex on the south, measured internally about 340 m east-west and 300 m north-south. While most of the Middle Town has fairly thick occupational strata, the area adjacent to the Citadel-complex seems to have been kept vacant, most probably for some ceremonial functions. Later in its life, the Middle Town was partitioned by an east-west wall, located in the southern part. The lateness of this wall

is indicated by the underlying strata which contain Mature Harappan material.

To the south of the Middle Town and juxtaposed to it was the Citadel-complex, having two adjacent parts, named by the excavator, as the Castle (on the east) and the Bailey (on the west). Both parts were duly fortified. While the Castle, with a height of 15-18 m above the surrounding plane, commanded the entire city-complex and its environs, the Bailey, the Middle and Lower Towns were successively lower. The area covered by the Citadel-complex (Castle plus Bailey) was about 300 m east-west and 120-140 m north-south. (The Bailey slightly stretched beyond the Castle, on the south).

The defence-walls around the Citadel were initially made of mud-bricks but were subsequently provided with a veneer of stone-rubble and even of hammer-dressed blocks. There is evidence of damage to the fortifications, perhaps by an earthquake, and then of subsequent repairs. While full details have yet to be ascertained, at one point the basal width of the wall, inclusive of the revetment, was noted to be about 18.5 m. The extant height, related to Stage III, was about 9 m.

The Castle had four gates, placed about the middle of each side. While the gates on the western and southern sides were simple ones, those on the north and east had elaborate planning. The northern gateway, overlooking the open space between the Castle and the Middle Town, pierced through the width of the fortification-wall and was set within its thickness. Proceeding from inside the Castle outwards, there was first an L-shaped staircase, the upper (and longer) arm of which was laid in a west-east direction. It had thirteen steps, going down to a landing at a depth of 2.30 m. Over here the direction changed to south-north, providing a further descent of about 2 m, by means of ten steps (pl. XLIIB). The steps terminated against a threshold of smoothly finished limestone slabs. From here on there was a level, i.e. unstepped passageway, running south-north to a length of about 7 m and ending up in another threshold similar to the foregoing but having rectangular holes which most probably held some wooden framework. The passageway opened on a large terrace projecting out beyond the external face of the defences by 12 m. It had a height of 6 m above the level of the open space on the north. Lengthwise, i.e. along the fortifications, it has been exposed to a total of 79 m (pl. XLIIA). While on the western side the terrace had a vertical face, it sloped down on the eastern side to join the level of the ground outside.

At a height of a little over 2 m above the level of the passageway, on its either side, there was a chamber. The passage-side walls of these chambers incorporated polished stone-blocks and parts of pillars. On the basis of some evidence the excavator is inclined to think that the gateway had two storeys, involving woodwork. However, what is most interesting is the discovery of a large inscription comprising ten letters of the Indus script. Made up of carefully sliced pieces of some 'crystalline material, maybe rock, mineral or paste', each one of these letters is about 35-37 cm in height, the width, according to the nature of the symbol, varying between 25 and 27 cm (pl.XLIIIA). While the purpose of such a large-sized inscription will continue to be debated, it must at once be admitted that it is a unique discovery of its kind in the entire gamut of the Mature Harappan Civilization.

The eastern gateway, like its northern counterpart, has the various components, viz. a staircase, a passageway, an elevated side-chamber and a frontal terrace, In the walls of the side-chamber have been found highly polished limestone blocks. These include, besides others, a *damarū*-shaped part (pl. XLIIIB). In all likelihood they supported the roof of the chamber. The polished stone pillars (pl. VIA) are, again, unique in Harappan

architecture. Indeed, had these pillars not been found *in situ*, even knowledgeable scholars would have doubted their high antiquity because of their workmanship and finish on the one hand and absence of such specimens from any other Harappan site on the other.

A 13-m wide street, connecting the eastern and western gateways, divided the Citadel into two parts, the southern being somewhat larger than the northern. In the south-western part a water tank has been identified. Made of stone-blocks, its walls were provided with lime-plaster which was renewed from time to time. A staircase descended into it from the then ground-level.

All told, there is little doubt that Dholavira has added substantially to our knowledge of the Mature Harappan town-planning and architecture and has also provided a unique example of an inscription of those times.

VII

SOME OTHER NOTEWORTHY SITES

Besides the major excavated sites discussed in the previous chapter, it may be well worthwhile referring, even though briefly, to some other sites as well, since the excavations/explorations thereat have added in one way or another to our knowledge of the Harappan Civilization. In doing so, however, certain sites bearing Harappan strata but better known for their pre-Mature Harappan remains, such as Amri, Gumla, etc., which have already been dealt with in sufficient detail in Chapter IV, are not repeated here. The selected sites will be taken up more or less in a geographical order, from west to east and then to south.

SUTKAGEN DOR

Located along the seacoast in Makran, Pakistan, Sutkagen Dor is the westernmost site of the Harappan Civilization known so far. It was discovered and partly excavated by Major Mockler as far back as 1875. In 1928 it was revisited by Aurel Stein who also carried out some excavations. However, the latest work over here is that by George F. Dales and his colleagues (Dales and Lipo 1992), which gives a fairly intelligible picture, though further excavations at this site and explorations in the neighbouring region to look for more Harappan sites, are still called for.

Why the Harappans chose to have a settlement in this otherwise inhospitable rocky terrain is not easy to explain, unless it is presumed that they did so to assist in and supervise the coastal trade that was being carried out between their main centres in the east and southeast on the one hand and the regions in the Persian Gulf and Mesopotamia on the other. The size and nature of the settlement also indicate that it was not a big urban centre such as Mohenjo-daro, Kalibangan, etc., but served only a limited purpose.

The main part of the settlement consists of what has been called a 'Citadel', although there exists very little evidence regarding the counterpart, viz. the 'Lower Town'. The excavation carried out by Dales in the area outside the Citadel, to its east, did not yield any substantial habitational remains, although Mockler did come across some. Be that as it may, the Citadel, commanding the area, forms a rectangle oriented along the cardinal directions. According to the plan published by Dales, it measures 335 x 200 m internally, although the details given by him in the text are somewhat different. Two trenches, one laid at right angles to the western wall of the Citadel on the interior and the other across the

eastern wall, revealed that the fortifications were made of stone. The width of the eastern wall at its base was noted to be 7.5 m. Abutting the eastern face of the western wall and running parallel to it, however, there was another structure, made of mud bricks, its thickness being 2.3 m. Since the area excavated was very limited, it is difficult to understand the exact purpose of this latter structure. The excavators, however, are inclined to guess (Dales and Lipo 1992: 147) that it may have been a '"banquette" whose purpose was possibly to shield sentries patrolling the wall from direct attack by arrows and missiles'.

The artefacts recovered from the site include, besides typical Mature Harappan pottery, a copper arrowhead, a truncated hollow copper cone, fragments of copper blades, terracotta bangle-fragments, a broken terracotta triangular 'cake' and a base-fragment of an alabaster vessel. However, no seal or other inscribed material was found. This may perhaps be due to the limited nature of the dig. Or, was it that Sutkagen Dor itself was not engaged in commercial activities but was functioning only as a halting port for the mariners on their outward and inward journeys?

BALAKOT

In Chapter IV we discussed the cultural complex that preceded the Mature Harappan Civilization at Balakot. Here we shall deal with the Harappan remains themselves.

Located in the Sonmiani Bay on a formation of Khurkera alluvial plain, the ancient site rises to a height of about 10 metres above the surrounding ground level and covers 2.8 hectares of area. The excavations were carried out between 1973 and 1976 by a joint expedition of the University of California, Berkeley, and the Department of Archaeology, Pakistan, under the overall direction of George F. Dales (1979a & b and 1981).

As mentioned earlier, there was a substantial time-gap between the preceding Balakotian Culture and the Harappan. But it is also clear that the Mature Harappa Culture did not take very long, after its emergence, to make its presence felt at this far off coastal site: the relevant radiocarbon dates are 2584 and 2455/2416/2405 BC.

As it is, the western part of the mound is much higher than the eastern, which may be due just to a much greater erosion of the eastern part. However, since the concept that Harappan settlements usually had two separate parts — a Citadel on the west and a Lower Town on the east — had come into being well before the excavations were undertaken at Balakot, the excavator was naturally on the lookout for such a disposition at this site. Thus, he was trying to ascertain if the site had two separate components and peripheral/fortification walls went round each one of them. But the outcome is unclear. In Dales' own words (1979a: 52) the position may be summed up as follows: 'These and other features lend strong support to the view that the western High Mound was surrounded by a formal wall. Unfortunately, excavation at the northern, western and southern upper edges of the High Mound revealed no such surviving remains.' As regards the lower part of the site he adds: 'There is also some evidence pointing to the existence of a formal wall encompassing the lower eastern half of the site but the surviving remains are too fragmentary to confirm this.'

Whether Balakot was fortified or not, it is clear that it did have a systematic town-plan. Within the area excavated on the High Mound it was noted that an east-west street divided the settlement into two parts, a northern and a southern. Joining this street at right angles were several north-south ones, thus forming a gridiron pattern on plan. In the upper part of the High Mound excavations

were carried to a depth of about 2 m, within which two architectural levels were determined. However, on the southern slope as many as five or six constructional levels were identified. The houses were usually made of mud bricks, the use of kiln-fired bricks being restricted mainly to drains. The houses comprised a courtyard and a few rooms, with hearths, storage jars, etc. In one of the houses was noted a floor paved with square bricks carved with a design of intersecting circles, similar to that found at Kalibangan. In another case, the floor was plastered with white lime and in its middle there were 'the charred remains of what might have been a wooden column'.

While most of the ceramics and antiquities found in the Harappan strata were typical of that culture, influence from adjoining Baluchistan was also noted. This was particularly seen in the pottery and in the painted terracotta figurines of the bull. Also found was a jar the shape and painted designs of which are reminiscent of similar vessels in the West Asian region. The typical Harappan artefacts included spearheads, arrowheads and vessels of copper/bronze, terracotta 'cakes' and gamesmen and last but not least steatite seals. As regards the seals, it needs to be stated that of the five specimens found in the excavation as many as four bore the figure of unicorn. In the fifth case the identification of the animal is uncertain. It may well be that, if a particular animal-figure on the seals is to be associated with a particular group of people, the Balakotian Harappans subscribed to the Unicorn insignia.

However, the most noteworthy and prolific industry at Balakot was that of shell-working. In two different areas of the High Mound have been found thousands of pieces of worked mollusc shells, including specimens in various stages of manufacture. Dales adds (1979b : 269): 'The Balakot shell industry is apparently unique in its preference for using the bivalve *Meretrix casta* instead of the more usual conch shells usually seen at other sites.' Besides being a halting point for the seafaring vessels from Gujarat to western Asia and *vice versa*, Balakot may itself have provided the shell bangles as an item of export.

ALLAHDINO

About 15 km east-northeast from where the Indus joins the Arabian Sea and around 40 km east of Karachi lies the mound of Allahdino. Covering an area approximately a hundred metres each way, it rises to a height of about 3 m above the surrounding ground-level. The significance of the site lies in the fact that in spite of its being a tiny mound, as compared to the metropolitan Harappan sites on the Indus system, it has yielded good evidence of town-planning as also a rich haul of artefacts (Shaffer 1979; Fairservis 1982).

The occupational strata at the site have been divided into three phases, which have been numbered 1, 2 and 3, from top downwards. Although the Mature Harappan pottery occurred throughout the occupation, Phase 3 (the earliest) had a more pronounced component of microlithic tools such as lunates and points. Because of the limited area excavated in the lower levels, not much was discovered by way of structures. However, ascribable to the uppermost phase was an intersting layout of structures. Though there was no fortification-wall around the settlement, nor was there the typical grid-pattern of the streets, yet the houses had an orientation, viz. west-southwest to east-northeast. The walls were made of mud bricks but were quite often provided with stone foundations. Stone was also used for wells, bathing platforms and drains. Of a big building in the northeastern part of the excavated area, some walls stand even today to a height of about 2 m. It has a large mud-brick platform and many rooms and seems to have had some

special significance. In another building-complex, to the southeast of the former, three wells were found in an alignment. Most of the wells at this site have a small mouth—from 60 to 90 cm. Fairservis (1982: 110) is inclined to think that the diameters of the wells were purposely kept small since this would enable the underground water to 'rise higher than the surrounding water-table because of hydraulic pressure'. He also thinks that the well-water may have been used for irrigating the fields nearby.

The finds include a large number of copper objects, gold and silver ornaments, beads of semi-precious stones and seals in the typical Harappan style, besides the ubiquitous terracotta toy-carts and triangular 'cakes'. Though small in size, the settlement had urban overtones as suggested not only by the large buildings but also by the richness of the objects found therein, specially the metallic ones and the seals. It is, therefore, not unlikely that being close to the Indus delta it may have functioned as a port-town participating in the overall Harappan sea-trade.

KOT DIJI

This site shot into prominence because it brought to light for the first time fairly extensive remains of a culture-complex which stratigraphically preceded and subsequently interlocked with the Harappa Culture and which, on a further analysis, was found to have given rise to the Harappa Culture itself (Khan F.A., 1965). While we have discussed the pre-Harappan remains in an earlier chapter, here we shall deal with the Harappan.

According to a representative section published by Khan (1965: fig. 7), the Harappan deposit accounted for a thickness of 4.5 m, which should imply a fairly long duration of occupation, though, unfortunately, we do not have any radiocarbon date to back this assumption.

As has already been mentioned, the pre-Harappan settlement was duly fortified. However, the fortification-wall went into disuse towards the close of the Kot Dijian times and, according to the excavator (Khan 1965: 30), 'there is no evidence to indicate that the Harappans reused it'. This would appear to be unusual, since the Harappans were rather fond of fortifications and had in fact elaborated the system. Be that as it may, the Harappan occupation at Kot Diji was a full-fledged one, there also being evidence to show that in terms of extent, the Harappans covered a much greater area than their predecessors.

The artefacts discovered from the Harappan levels include: typical painted pottery; terracotta triangular 'cakes', mother goddess figurines and plain and painted bangles; stone mace-heads and leaf-shaped arrowheads; disc-shaped beads of paste; chisels, arrowheads, blades, bangles and finger-rings of bronze; and last but not least two steatite seals.

BALU

Situated in District Jind, Haryana, the mound at Balu covers an area about 200 x 80 m. The total occupational deposit, measuring 4.5 m in thickness, is divisible into three periods, with a break between them all (Singh and Bhan 1982; *IAR 1983-84*: 29). The earliest period, having a metre thick deposit, yielded pottery similar to that of Kalibangan Period I. Since the area exposed in these earliest levels was very limited, no worthwhile artefacts were recovered. However, the middle period, which accounted for a thickness of 2.20 m, yielded a good number of Mature Harappan objects, such as faience bangles, steatite disc-beads, copper objects, triangular terracotta 'cakes', etc.

Though small, the Mature Harappan settlement was duly fortified and also yielded evidence of orientation of the streets. The

fortification-walls as well as the houses inside were all made of mud bricks. Noteworthy amongst the structures was a 10-m wide platform made of large-sized (44 x 22 x 10 cm) mud bricks. At least ten courses were identified which tapered upwards. Maybe this platform was put to some use by the community, which, however, is difficult to determine.

The uppermost period presents the Harappan Civilization at its decline. In it there occurred dishes-on-stand with a pronouncedly drooping rim, vases with high neck and incised Baran pottery — all of which are characteristic of the devolutionary stage of the Harappan Civilization in this region.

ROPAR

Located on the left bank of the Sutlej in Panjab, Ropar (also spelt as Rupar and now known as Rupnagar) has the distinction of being the first Harappan site excavated in India after Independence. It was explored by the present writer in 1950 (Lal 1954 & 1955: 7) and later, during 1953-55, it was excavated by Y.D. Sharma (1982). At present the site is divided into three mounds, but whether anciently this was the case is difficult to say. Of these, the southern mound is overridden by the modern town and hence not much excavation could be carried out there. It is the northern mound, rising to a height of about 21 m, that revealed the maximum information relating to the sequence of cultures. Underneath the western mound lay a cemetery of the Harappan times.

The excavation revealed six cultural periods out of which we are concerned here with only the earliest, viz. the Harappan (Period I), the rest being assignable variously from the Painted Grey Ware Culture times (ca. 1000 BC) to the medieval period (ca. AD 1700). In the lower levels of Period I there also occurred, alongside the typical Mature Harappan material, pottery which is similar to that available at many of the pre-Mature Harappan sites in Rajasthan and Haryana (such as Kalibangan, Banawali, etc.), reaffirming a continuity from one stage to the other. Also present in the Harappan levels was pottery which is known as the Baran after the type-site, Bara, located not far from Ropar. Its characteristic feature is a variety of incised designs. The houses were usually made of mud bricks with occasional use of kiln-fired bricks. Sometimes *kankar*-stones which are available from the natural deposits in the locality were also used. The bricks were irregular in size — a rather unusual feature for the Mature Harappan stage, but the thickness was uniformly 10 cm.

The antiquities comprised almost all the typical Mature Harappan ones: for example, a steatite seal, a terracotta sealing with impressions of three different seals, chert weights, a razor, arrowheads and spearheads of copper, beads of steatite paste and carnelian, triangular 'cakes' and toy-cart frames of terracotta, etc.

The cemetery contained complete inhumation burials. The body was laid supine in an extended position but the head was towards the northwest instead of true north. The grave-furniture included pottery, besides personal ornaments. Indeed, in one case the person interred continued to wear a faience bangle on the left wrist, while another had a copper ring on the middle finger of the right hand. But no less interesting was the burial of a dog — perhaps a pet, underneath the master.

MANDA

Manda is the northernmost of the Mature Harappan sites so far discovered on the Indo-Pakistan subcontinent. It lies on the right bank of the Chenāb, some 28 km northwest of Jammu. The excavations over here have brought to light three cultural periods, labelled I, II and III from bottom upwards. Of these, Period I has been further subdivided into A and B. With a 1.4-m thick deposit, Subperiod IA

yielded pottery about 15-25 per cent of which is akin to that of Period I of Kalibangan. Amongst the painted designs, special mention must be made of the 'horned motif' which, as stated earlier, had a very wide distribution during the pre-Mature Harappan times. However, the rest of the pottery was typically Mature Harappan. The artefacts included terracotta 'cakes', chert blades, tanged arrowheads of bone and a double-spiral-headed pin of copper. An unfinished seal and a few potsherds with graffiti also deserve special mention.

By Subperiod IB, which accounts for a thickness of 1.7 m, the Kalibangan I type of pottery disappeared. However, besides the Mature Harappan ware, the pottery-assemblage included 'Grey Ware elsewhere generally associated with Painted Grey Ware' and 'a small quantity of thick Burnished Grey Ware' (Joshi and Madhu Bala 1982: 187-88). The excavators further add that the Grey Ware shapes included dishes and bowls with straight sides and emphasize the absence of iron in these strata. Periods II and III yielded remains of early historical times with which we are not concerned here.

BHAGWANPURA

Situated on the right bank of the Sarasvatī in District Kurukshetra, Haryana, Bhagwanpura has not only yielded the remains of a highly impoverished, struggling-to-survive derivative of the Harappan tradition but has also shown that this stage overlapped with the cultural *milieu* associated with the Painted Grey Ware, so typical of Panjab, Haryana and western Uttar Pradesh, towards the end of the second and the first quarter of the first millennium BC.

The total habitational deposit of 2.7 m has been divided into two subperiods, viz. IA and IB, from bottom upwards (Joshi 1993). The inhabitants of Subperiod IA built their residences on mud platforms, evidently to escape the ravages of floods from the nearby river, of which ample evidence was found in the excavations. One such platform measured as much as 10 x 4.5 m on plan; it was also provided with a landing step. The pottery of this subperiod represents an amalgam of various regional traditions: an effete Harappan; a hangover even of the pre-Mature Harappan; the Baran, known for its incised designs; and a tinge of even Cemetery H. Amongst the shapes, though the dish-on-stand is present, the dish part shows a conspicuous drooping of the rim. The same feature is noted in the rims of the jars. Flanged-neck basins and button-base goblets are amongst other noteworthy types. Amongst the painted designs, one may note the survival of the pipal- and banana-leaves. Not much was recovered by way of artefacts except for a few copper rods and pins, a terracotta long-horned bull, terracotta hubbed wheels and anthropomorphic figurines.

Without any occupational hiatus in between, there was Subperiod IB. While the pottery of the preceding subperiod continued, there also came up first a plain grey ware and then the Painted Grey Ware. With the passage of time the earlier pottery diminished and the Painted Grey Ware dominated the scene. Three structural phases were noted during this subperiod. To the earliest belonged circular or semi-circular huts. Ascribable to the middle phase was a very large house, made of mud walls and having as many as thirteen rooms, a corridor and a courtyard. From within this house a good number of specimens of the Painted Grey Ware and its associated wares were recovered and only about five per cent of the pottery belonged to the red ware amalgam which continued from Subperiod IA. In the uppermost levels of IB kiln-fired bricks were also used: these were squarish, measuring 12 x 12 x 8 cm or 20 x 20 x 8 cm, which may have been used for floors, and wedge-shaped ones suitable for lining wells. However, no

structure as such was found because of subsequent depredation.

Amongst the small finds from Subperiod IB the following deserve special mention: glass bangles in white, black and sea-blue colours, copper bangles and rods, decorated faience beads, a bull-shaped pendant in carnelian, wheeled and incised terracotta rams, a violin-shaped mother goddess in grey ware and 'a seal with incised graffiti of Harappan lineage'. This admixture thus confirms the coexistence of the surviving Harappan and allied tradition, howsoever diluted, with the Painted Grey Ware.

Before we close this brief discussion of the discoveries at Bhagwanpura, mention must be made of two burials which, strangely, were encountered in the habitation area. The Harappans are known to bury their dead a little away from the habitation, and no graves of the Painted Grey Ware people have so far been discovered at any of the sites of that culture. In one burial there lay an adult and in the other a child. However, the mode of placing the body was identical in both cases. It was oriented north-south with the head on the north and the face turned eastwards. No funerary goods have been reported from these graves, making it rather difficult to assess the cultural affiliation of those who lie buried.

HULAS

Not far from the Katha Nala which joins the Yamunā, Hulas is located in District Saharanpur, Uttar Pradesh (Dikshit 1982). The ancient mound covers an area of about 330 x 170 m, but excavations revealed that only a part of it belonged to the Late Harappan Period, the rest having been occupied during later times. Within a total thickness of about five metres, as many as five cultural periods were identified. Beginning from the lowest, these are ascribable to: I, Late Harappan Period; II, Painted Grey Ware Period; III, Northern Black Polished Ware Period; IV, Sunga-Kushan Period; and V, Gupta Period. Of these, only Period I is of interest to us in the present context.

Having an average thickness of 1.5 m, Period I yielded pottery, which, though derivable from the Mature Harappan, shows features which are noticeable at many Late Harappan sites in the region. Thus, for example, it included dishes-on-stand with prominently drooping rim, high-necked jars with everted rim, basins with undercut rim and a variety of miniature pots (fig. 7.1). The painted designs too were not all that varied and rich as in the Mature Period, yet included the peacock, banana plant and a row of hatched triangles (fig. 7.2). The finds included faience beads and bangles, terracotta 'cakes', cart-wheels with raised hubs, etc. Also, special mention must be made of a sealing bearing an inscription in the typical Harappan script and two large-sized terracotta objects with tapering sides and 'horned' top. While the former confirms a continuity from the Mature Harappan times, the latter has similarity with other Late Harappan sites in Uttar Pradesh and Haryana. No significant structures were encountered in Period I. Nevertheless mention must be made of a mud platform which may have been put up perhaps as a measure against likely floods. Anyway, the construction of mud platforms was well in the Harappan tradition.

ALAMGIRPUR

For long it was believed that the Harappan Civilization never crossed into the Gaṅgā-Yamunā *Doāb*. This belief, however, was belied in 1959 when Alamgirpur, located in Meerut District of Uttar Pradesh, was found to yield the remains of that civilization, notwithstanding the fact that these did not belong to the peak but a late stage. The mound, measuring 60 x 50 m, lies on the left

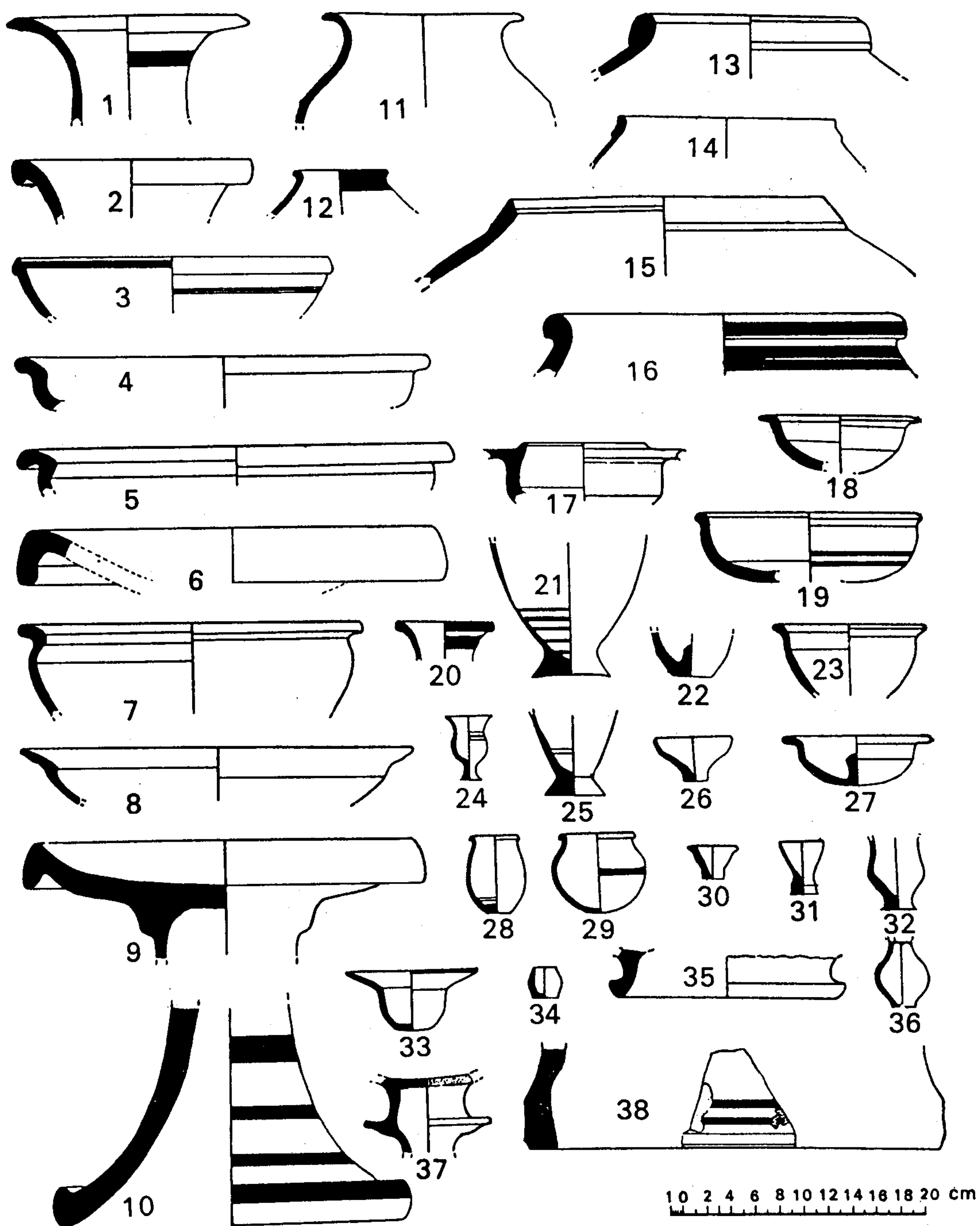


Fig. 7.1 Hulas: Pottery types, Period I

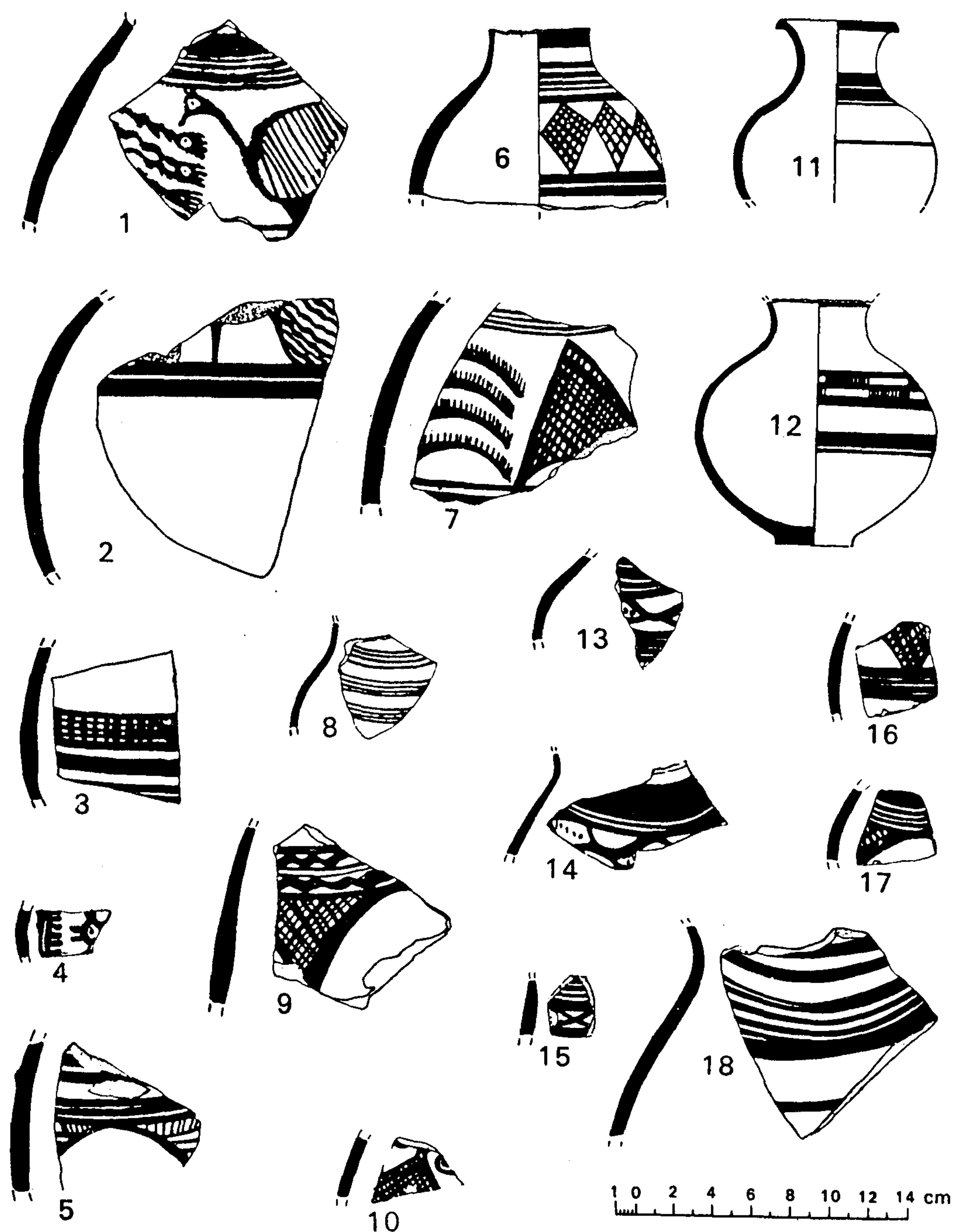


Fig. 7.2 Hulas: Painted designs on Pottery, Period I

bank of the Hindon river, an eastern tributary of the Yamunā. From Delhi it is about 45 km to the northeast.

Excavations over here revealed four periods of occupation, with a break in between them all (*IAR 58-59*: 50-55). While the earliest, Period I, belonged to the Late Harappan Stage, Periods II, III and IV are ascribable to the Painted Grey Ware, early historical and late medieval times. The pottery of Period I included, besides fragments of perforated jars and cylindrical beakers, dishes-on-stand with pronouncedly drooping rim, high-necked jars with flaring-out rim and pointed bottom goblets (fig. 7.3). Amongst the painted designs one might take note of the peacock, intersecting circles, besides triangles, squares and large spirals. In a pit were found a large number of broken parts of platters and basins. Some of these bore a couple of letters in the Indus script. The platters have either a ring or a set of three small legs below the base (fig. 7.3, no. 15). Such platters, known as *chakalās* or *pātās*, are used even now in the region for rolling the bread (*chapātī*) before it is baked on fire. On one of the basins were also found the impressions of cloth with 'plain weave'.

The houses were made variously of wattle-and-daub, mud bricks or kiln-fired bricks, the sizes of which were either 30 x 15 x 7 cm or 35 x 20 x 10 cm. The finds include: cubical dice, triangular cakes, cart-frames, animal figurines — all of terracotta; bangles, beads and miniature bowls of faience; discular micro-beads of steatite paste; and fragments of pins and celts of copper. A small terracotta piece, perhaps part of a bead, had a coating of gold.

DESALPUR

One of the westernmost sites of Harappan vintage in Kutch, Desalpur is located at the northwestern edge of the Little Rann. It lies almost midway between Mohenjo-daro and Lothal and is likely to have acted as an intermediary between the Sindh Harappans on the one hand and those of Gujarat on the other. Covering an area of about 130 x 100 m, the mound rises to a height of a little over 3 m. The excavations carried out by K.V. Soundara Rajan in 1964 (*IAR 1963-64*: 10) brought to light a fortification-wall encompassing the settlement. With a basal width of 4 m, the wall is still available to a height of about 2.5 m. It appears that originally it was made of mud bricks with a veneer of large-sized stone blocks which in one case were found to be more than 3 m in length and 1.3 m in height. At intervals, the fortification-wall was reinforced with bastions.

The houses were made of stones or mud bricks or a combination of the two. Kiln-fired bricks were very rare, which is understandable since plenty of stone is readily available in the neighbourhood. It is interesting to note that the bricks conformed to the standard Harappan ratio of 4:2:1, measuring 50 x 25 x 12.5 cm. Within the Harappan occupation two subperiods, IA and IB, were identified. While the former was characterized by most of the typical Harappan pottery-shapes and many painted designs and a greenish grey 'reserved slip' ware, Subperiod IB was noted for the appearance of grey-painted black-and-red ware which has also been noted at other Kutch and Gujarat Harappan sites in late levels and may have infiltrated into this area from the Ahar region of Rajasthan. The Lustrous Red Ware, noted at Rangpur, is, however, conspicuous by its absence even in Subperiod IB.

Amongst the noteworthy artefacts mention may be made of: weights of terracotta and jasper; cart-wheels and frames of terracotta; triangular terracotta 'cakes'; copper knives, chisels, rings and rods; and last but not least two inscribed seals, one each of steatite and copper, and an inscribed terracotta sealing. In

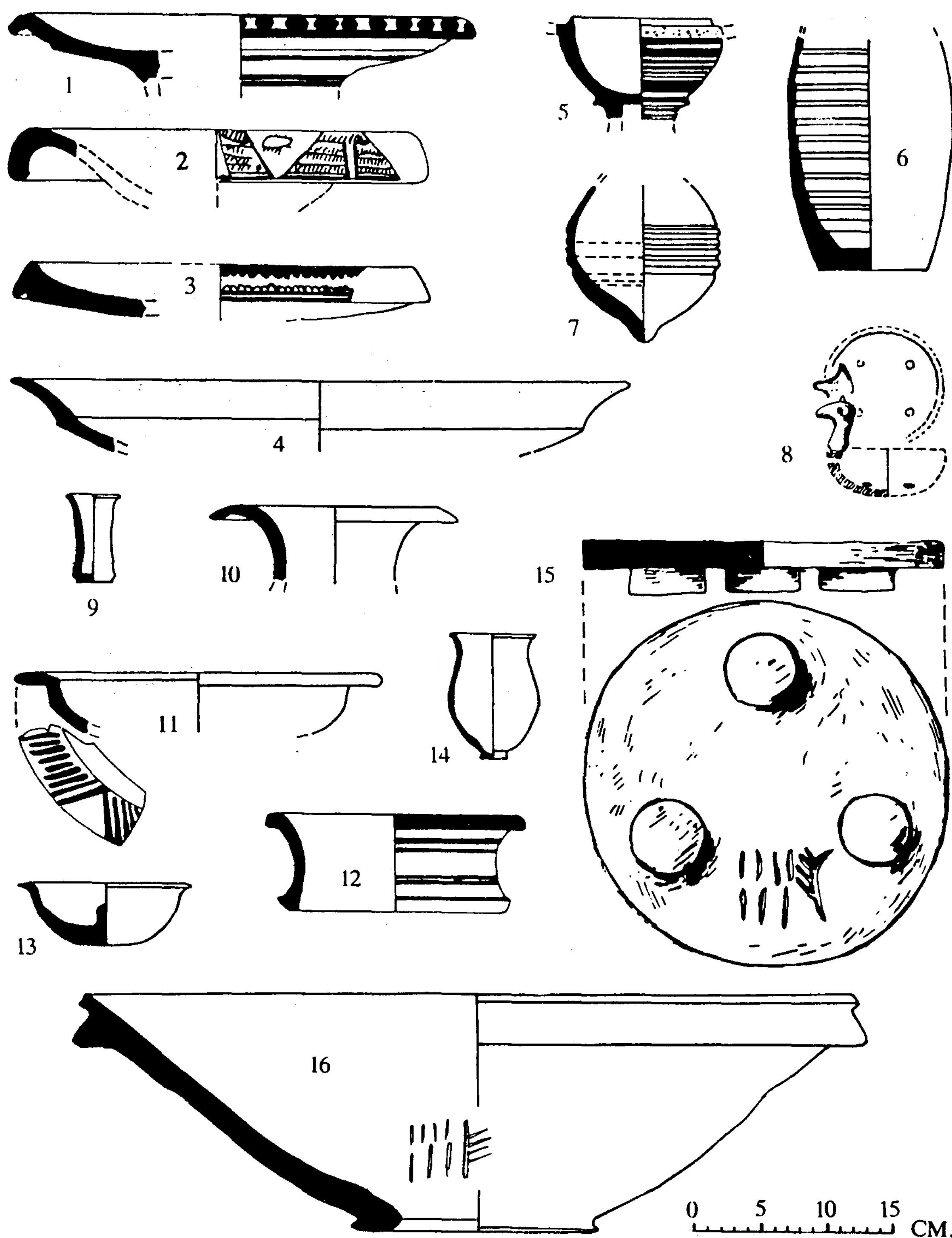


Fig. 7.3 Alamgirpur: Pottery and a *chakalā* (no. 15), Period I

this context it is worth mentioning that copper seals are rare on the Indian side of the border and may have come from Sindh where they occur at Mohenjo-daro.

KUNTASI

Kuntasi is a small village in Rajkot District of Gujarat. The ancient site, locally known as Bibi-no-Timbo, is located about 2.5 km from this village, on the right bank of the Phulkī river. It covers an area of about 2 hectares and rises to a height of about 7 m above the surrounding plains. The river joins the Little Rann of Kutch.

Excavations carried out by M.K. Dhavalikar, jointly with M.R. Rawal and Y.M. Chitalwala, have revealed two main periods of occupation: I, Mature Harappan; and II, Late Harappan, without any break in between. On the basis of two radiocarbon dates, Dhavalikar (1991) has dated the two periods respectively to ca. 2200-1900 BC and ca. 1900-1700 BC.

Period I yielded, besides the typical sturdy black-on-red Harappan ware, a bichrome ware having a red and buff surface with the designs painted in black and brown colours. The Harappan pottery included S-shaped jars, ledge-necked jars, etc., besides stud-handled bowls so typical of the Gujarat region. Amongst the smaller finds of this period, the more noteworthy were: terracotta toy-cart frames, tubular carnelian beads (no etched examples are reported), faience and steatite beads, cubical chert weights, etc. An interesting discovery was that of a small pot embedded in one of the rooms of a seemingly important house, containing, besides thousands of micro-beads of steatite, a few bangles and two rings of copper. One of the rings—the other is broken—has a double-spiral top. Though no seal with typical Harappan legend was found, there did occur a square seal of faience with an incised linear pattern, reminiscent of a similar example from Harappa.

The layout of the settlement is of no less interest. Like most Harappan settlements in the Kutch region, Kuntasi was also fortified. In fact, there were two successive walls, one behind the other, enclosing an area about 125-m square. The entrance, about 3 m in width, was on the east. However, there was no 'Lower Town', such as found at Mohenjo-daro, Kalibangan, etc., though no doubt there were a few houses outside the fortification. The Kuntasi layout had another interesting feature, viz. that the houses inside the fortifications were arranged along the four sides, leaving an open area at the centre. Perhaps this open area was used for occasional community gatherings. Amongst the structures, some seem to have had a ritualistic association, some others were used for industrial purposes, one had five large silos indicating that it was a granary, and there was a very large house-complex, occupied presumably by the 'chief' of the settlement. The structures were generally made of stone rubble with mud mortar. These were also plastered with mud. In some cases, the walls were made of mud bricks with stone foundation. Interestingly, the bricks evidenced the typical Harappan ratio of 4:2:1.

Period II, Late Harappan, showed signs of decadence — reduction in the area of the settlement and rather shoddy houses. Though some of the Harappan shapes continued in the pottery, the painted designs were now only linear, and these too scarce. The stud of the handled bowls became longer. However, more noteworthy was the occurrence of the Ahar-type of black-and-red ware, a feature, it may be recalled, similar to that in Surkotada IC. It is likely that, being close to the ancient sea-line (today the sea is about 4 km away as the crow flies) and located on the bank of a river, Kuntasi may have functioned as a high-tide esturine port, accommodating small crafts.

Local tradition has it that a couple of centuries ago Muslim pilgrims used to sail from here for *hajj* and it is because of this that the village on the opposite side of the river is known as Hajnali. A stone anchor, though found on the surface of the mound, lends some credence to the port hypothesis.

ROJDI

Occupying an almost central position on the Saurashtra plateau in Gujarat, Rojdi can claim to be a typical site of the protohistoric period in that geographical set-up. It follows the bank of a river, the Bhadar, and is thus much longer than wide: about 500 m in length and only about 150 m in width, the overall area being about 7.5 hectares. Many archaeologists had earlier contributed to the exploration and excavation of Rojdi, including P.P. Pandya, M.A. Dhaky and C. M. Atri, but it is the prolonged work, from 1982 to 1986 and again from 1992 to 1995, by a joint team of the Department of Archaeology, Government of Gujarat, and the University of Pennsylvania, USA, under the direction of Gregory L. Possehl that threw much welcome light on the site and its chronological horizon (Possehl and Rawal 1989).

On the basis of the pottery and other finds, the occupational strata of the sites have been grouped into three periods which, from bottom upwards, have been labelled as Rojdi A, Rojdi B and Rojdi C, though they all belong basically to the same overall cultural complex. While the details of the radiocarbon dates will be given in Chapter XIII, dealing with chronology, it would suffice here to state that, according to the excavators, the three periods are assignable as follows:

Rojdi C: 2000-1700 BC
Rojdi B: 2200-2000 BC
Rojdi A: 2500-2200 BC

So much for the chronology. Now to the contents. And it is here that the site stands out by itself, not as a very characteristic settlement of the Mature Harappans, as are the sites in Sindh or even in the neighbouring Kutch and Gujarat plains, but as a regional variation of the Harappan. In the excavator's own words (Possehl and Herman 1990: 313), 'not more than 28 of the 98 Mohenjo-daro vessel types and subtypes recorded by Dales and Kenoyer (1986) are found at Rojdi. Several of the most important Rojdi forms, the very common convex-sided bowl and some dish-types, seem to be absent from Mohenjo-daro.' Likewise, the paintaing style is different (fig. 7.4). From the point of view of the characteristically Harappan criss-cross town-planning too, Rojdi has not much to offer. The subsistence pattern also is different from the typical Harappan wherein wheat and barley played the major role. At Rojdi there is dominance of the millets, such as *bājarā* (*Pennisetum typhoideum*), *jowār* (*Sorghum bicolor*) and *rāgī* (*Eleusine coracana* and *E.Indica*). All this seems to be in keeping with the terrain, surrounding vegetation and climate. The plants exploited and favoured seem to have been those that required less care and cultivation and were drought-resistant. The domesticated animals included, besides the zebu, water-buffalo, goat, sheep, pig, cat and chicken. However, wild animals were duly hunted for food. Amogst them mention may be made of: the black buck, *sāmbhar*, chital and *nīlgāi*. (It may, incidentally, be mentioned that in the local language the word Rojdi means *nīlgāi*). The site has also yielded the remains of an elephant.

Commensurate with the economic level of the people, the houses did not have elaborate sets of rooms, etc. These were made of mud walls on stone foundations. The use of kiln-fired bricks was very rare. There was also no system of drainage. Within the houses have been noted hearths and bases of storage jars. While in Rojdi A and B, the settlement seems to have been confined to about 2.5 ha, in Rojdi C it was more than doubled. There is

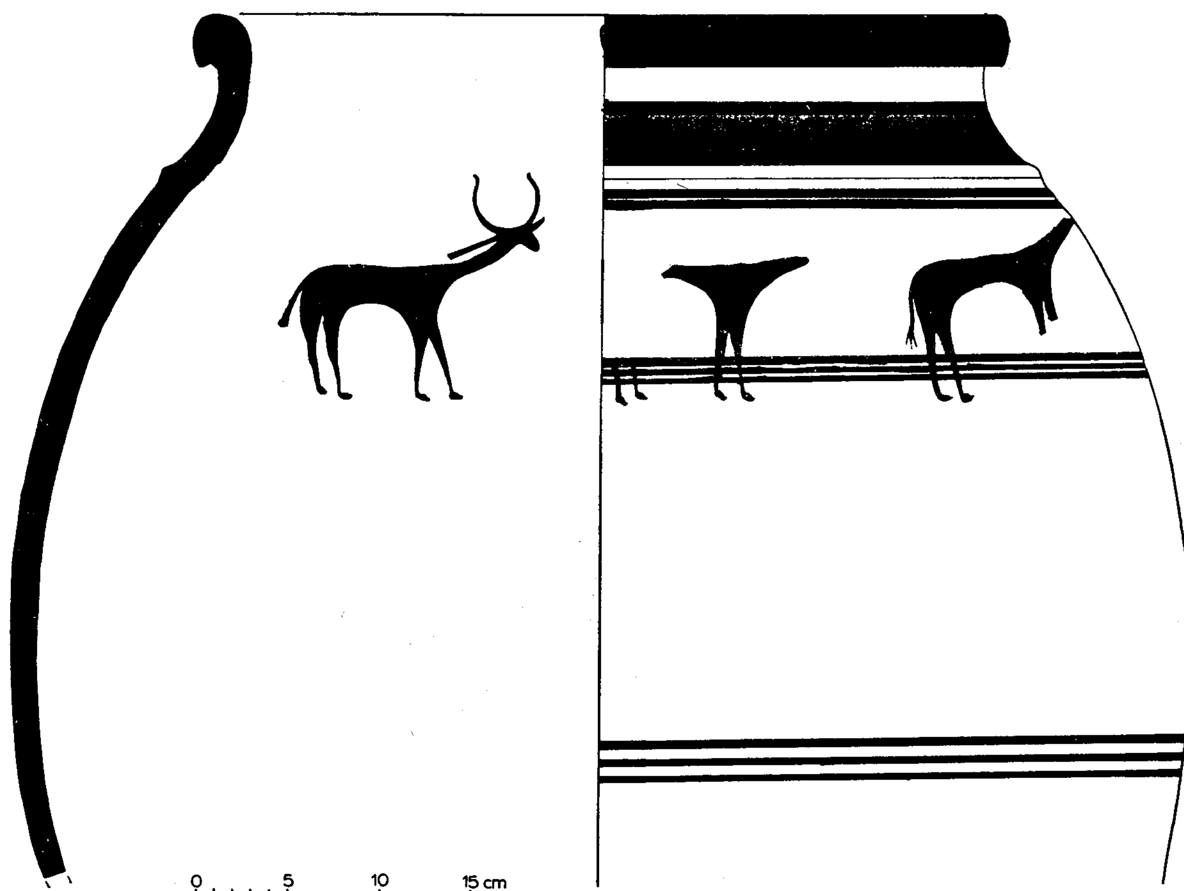


Fig. 7.4 Rojdi: Painted pottery

also evidence of an about 2-m thick fortification-wall, made of large-sized stone boulders, and of a gateway associated with it. It seems to have been laid out at an earlier stage but was elaborated and widened to 3 m in Rojdi C. But for a somewhat large-sized structure ascribable to Rojdi C, there are no 'monumental' buildings as such. Nor is there evidence of any industrial sector. Yet the culture was clearly in the Copper/Bronze Age, like the Harappan itself. This is indicated by the presence, though not in a very large number, of objects like axes, a *paraśu*, fish-hooks and a ribbed ornament.

Rojdi has not yet yielded any seal or sealing. But certainly some members of the community were literate, as indicated by the presence of at least one inscribed potsherd. Further, only a few weights, but no measuring scales, have come to light. Thus, in spite of the fact that Rojdi was a fairly large-sized fortified settlement of the region, qualitatively it had very little to compare itself with other Harappan towns of Gujarat, such as Lothal or Dholavira.

Taking into consideration the various cultural components, particularly the pottery, subsistence-pattern, etc. of Rojdi and allied sites in the region, Possehl has come forward with a new nomenclature for this complex: 'Sorath Harappan'. However, this Sorath Harappan is in no way a degenerate or late

phase of the 'mainstream' Harappan, as should be amply clear from the radiocarbon dates discussed at the beginning. In fact, if one wishes to cut it too fine, one might as well stress that whereas three of the Rojdi radiocarbon dates precede the 2500-BC mark, none of the dates for either Lothal or Surkotada does that (Chapter XIII).

In this context, one cannot afford to lose sight of yet another factor. The site of Somnath (Prabhas Patan) has yielded three cultural periods which, from bottom upwards, have been called: I, Pre-Prabhas Period; II, Prabhas Period; and III, Lustrous Red Ware Period. While it is well known from the evidence of Rangpur that the Lustrous Red Ware post-dated the Harappan, the radiocarbon dates for the Prabhas and Pre-Prabhas Periods show that the former was contemporary with the Mature Harappan and the latter duly ante-dated it. The dates concerned for the Pre-Prabhas Period are: 2982 BC (PRL-90) and 2911 BC (PRL-1287), beating the earliest date for the Mature Harappan Civilization by about three centuries. The implication of all these dates would be that in Saurashtra too there existed a cultural *milieu* well before the emergence of the Mature Harappan. It may thus be that the culture represented at Rojdi and other allied sites in Saurashtra had a development parallel to but somewhat different from that in the Indus and Ghaggar-Sarasvatī valleys. In this context it may be stated that in recent years the M.S. University of Baroda has come across certain sites in northern Gujarat yielding pottery similar to that from the early levels of Amri and Kot Diji. Could it then be that the ancestors of the Mature Harappans had already migrated to this southeastern zone at the beginning of the third millennium BC and evolved a culture-complex in their own way, depending on the environment and opportunities available to them?

DAIMABAD

As of now, Daimabad happens to be the southernmost site associated with the Harappan Culture, though the relevent excavated remains may not represent the Mature Phase. It is situated on the left bank of the Pravarā, a tributary of the Godāvarī, in Ahmednagar District, Maharashtra. The ancient mound covers an area of about 1000 x 500 m. The total thickness of the habitational deposits is about 5 m, of which, however, only a part is Harappan.

Discovered by B.P. Bopardikar in 1958, the site was first excavated by M.N. Deshpande in the following year. He identified three cultural horizons. From bottom upwards, these were: I, a Neolithic Culture similar to that of Brahmagiri Period I; II, the Malwa Culture; and III, the Jorwe Culture — II and III being chalcolithic in character. It was, however, in 1974 that the site suddenly shot into prominence when a cache of four solid copper figures was found in a clandestine dig. These figures comprised a chariot yoked to a pair of bullocks and driven by a man (pl. VIII B), a rhinoceros, a buffalo and an elephant (pl. VIII A). Put together, these weighed as much as 65 kg. There was a heated debate about their cultural association and it was but natural to look for the evidence by means of a fresh excavation, which was carried out by S.R. Rao in 1974-75. While bringing to light a few sherds of a new kind of pottery called the Savalda Ware and of a sturdy black-painted red ware suggestive of a Late Harappan association, the dig did not yield any conclusive evidence regarding the cultural horizon of the above-mentioned copper figures.

Further investigation was, therefore, called for. Thus, between 1975-76 and 1978-79, excavations were carried by S.A. Sali, which brought to light a comprehensive culture-sequence at the site. From bottom upwards,

there were: I, Savalda Culture; II, Late Harappa Culture; III, Daimabad Culture; IV, Malwa Culture; and V, Jorwe Culture (Sali 1986). As may be seen, the Harappans were not the first occupants of the site, but succeeded the Savalda people who were materially not so much advanced. Thus, while the Savaldans lived in irregularly laid out primitive houses with thatched roof, the arriving Harappans planned their houses along the cardinal directions. Made of mud bricks, though sometimes of just mud, the houses were rectangular on plan and contained circular hearths, storage jars, etc. In two of the houses was found, one each, a button-shaped terracotta seal with Harappan script. Elsewhere at the site were also found a few potsherds bearing Harappan signs, either engraved or painted. Within the complex was also identified a coppersmith's workshop. Not all the typical Harappan pottery-forms were met with, but certainly dishes- and cups-on-stand and vases were there. Likewise, while such characteristic painted designs as the pipal-leaf, intersecting circles were conspicuous by their absence, cross-hatched triangles, diamonds, concentric circles and the double-horned motif typical of Gujarat Harappans were duly noted.

An intersting discovery at Daimabad was that of a human burial in the typical Harappan style. The body of a male adult, about 25-30 years of age, was found in a pit which was lined with bricks made in the Harappan proportion of 4:2:1, measuring 32 x 16 x 8 cm or 28 x 14 x 7 cm. The dead lay supine and extended, oriented north-south, with the head towards the former direction. The pit had finally been filled with earth and brickbats, forming a tumulus. A stone was also placed on the northen side of the tumulus, to mark where the head lay. The use of stone is reminiscent of Harappan graves at Surkotada, where a kind of change seems to have been in the offing.

If one were to ask whether even these renewed excavations have conclusively established the cultural association of the bronze figures, the answer probably would be in the negative, since nothing like these was found in any of the strata, although a few copper/bronze objects did occur. It has been argued by some scholars that since depth-wise the level of the cache was approximately the same as that of the Harappans, the two should be treated as contemporary. But this does not prove the case 'beyond a reasonable doubt', since it is well known that the depth-criterion has many a loophole. One has thus to take note of other factors like style, metallurgy, etc.

Measuring 45 cm in length, the chariot, as already mentioned, is drawn by a pair of bullocks (pl. VIII B). A long pole joins the chariot with the yoke which passes over the necks of the bullocks. Holding a stick in his right hand, a standing male drives the chariot. In front of him, on the pole, there stands a dog. In one built with the axle, the wheels are solid. This last-named feature, it may be stated, is shared by some specimens from proper Harappan sites. The forward-projecting horns of the bullocks are reminiscent of those from Chanhu-daro. Also, the face of the driver does call to mind some Harappan figurines. All told, therefore, there is a case, howsoever slim, for a possible Harappan association. At the same time, there are other factors that militate against this. First of all, no Harappan site, whether Early, Mature or Late, anywhere in Harappan domain, has so far yielded any figure so massive as these. (The overall length of the buffalo is 25 cm and that of the elephant, 27 cm). But size alone is not the dissuading factor; metallurgy has also a lot to say. The Daimabad figures do not contain any alloy of tin, which was normal with the Harappan objects.

If one were to think in terms of the

Malwa or Jorwe chalcolithic people, whose cultural deposits have also been met with at Daimabad, as having been the authors of these figures, it would be less likely. First, these chalcolithic cultures are very poor in metal. Secondly, the metal used in the Daimabad figures contains arsenic — an ingredient totally absent from the chalcolithic specimens.

In this state of uncertainty, can we look round for some other clues? Of all the Copper/Bronze/Chalcolithic Cultures of India, it is the Copper Hoard Culture which alone could afford the luxury of using copper on such a massive scale: the Gungeria (Madhya Pradesh) Copper Hoard weighed over 400 kg— more than six times the weight of the Daimabad figures. Further, the metal used for the Copper Hoards meets both the positive and negative aspects of the Daimabad specimens, viz. the presence of arsenic and absence of tin. In point of time too, the Copper Hoards are ascribable broadly to this very chronological horizon (Lal 1972). And in case it is argued that the Copper Hoards belong primarily to the Gaṅgā basin, one might well recall that a Copper Hoard was found at Kallur which lies way south of Daimabad. At the same time, Daimabad itself has not yielded any tool ascribable to the Copper Hoard complex. Thus, in the present state of our knowledge, it would be best to leave the matter in a suspense account, awaiting some really clinching evidence.

VIII

THE ECONOMY

For any country to be able to stand shoulder to shoulder with any other country, whether now or in the past, it is necessary to be economically strong. This strength is provided by its productivity, for which resources, technical know-how, organizational capacity and, above all, the supremo called 'the will' are necessary prerequisites. And the Mature Harappan Civilization seems to have had all these in ample measure. As discussed earlier, while dealing with the origin of this civilization, there did no doubt exist a base on which it was founded, but then there was a concerted push, a will, a determination which changed the face from incipient urbanism to a full-fledged one within a period of just a century or so.

A. LAND AND ALLIED RESOURCES

(i) AGRICULTURE

The granaries at Harappa and Mohenjodaro clearly suggest that cereals were produced in such a large quantity that not only were all the immediate needs of the people duly met with, but there was also a surplus to face any future emergency. While the cereals stored in public granaries were evidently controlled by the authorities (whosoever these may have been, see Chapter XII), even private individuals seem to have put things by for the rainy day, as indicated by the occurrence of large storage jars. In one of the rooms at Kalibangan, many such jars were found stacked one over another.

The principal cereals seem to have been wheat and barley. Of the former, three varieties, viz. the Indian dwarf wheat (*Triticum sphaerococcum*), the club wheat (*Triticum compactum*) and *Triticum aestivum* were cultivated. In the case of barley, though the six-rowed variety (*Hordeum vulagre*) was dominant, two others, viz. *Hordeum vulgare nudum* and *Hordeum sphaerococcum* have also been met with (Costantini 1990). Rice seems to have been unknown to the Mature Harappans, at least in the Indus valley. At the same time, it must be noted that husk and spikelets of rice (*oryza* sp.) have been found mixed up with clay-lumps at Lothal and Rangpur, both in Gujarat. Clear evidence of rice, however, comes from Hulas, but that is in a Late Harappan context. Lothal has also yielded some evidence of millets, particularly Kāngnī (*Setaria italica* Beauv) (K. Ramesh Rao and Krishna Lal in S.R. Rao 1985: 667-83). Six varieties of millets, including rāgī (*Eleusine* sp.), kodon (*Paspalum scrobiculatum*), *sawā*

(*Enchinochloa colonum*) and *jowār* (*Sorghum*) have been identified at Rojdi, in the same region of Gujarat (Weber 1990). One has, thus, to recognize regional as well as chronological variations in the Harappan food-economy. Sesame and mustard, both used as cooking media and for lighting lamps, were also cultivated by the Harappans. But what is most exciting is that while Egypt, so famous for its cotton, did not produce that item in the third millennium BC, India did. Evidence of cotton cloth comes from Mohenjo-daro, where its decomposed remains were duly identified. It seems to have been made from the fibre of *Gossypium arboreum*. Besides, terracotta sealings found at many Harappan sites bear clear impressions of cloth that may have been used in the packages over which these sealings had been put. Indeed, on the Indo-Pakistan subcontinent the cultivation of cotton seems to go back much earlier since, as already mentioned, Mehrgarh has yielded the evidence for cotton during the fifth millennium BC. The Indus and many of its tributaries, originating in the Himalayas, start getting snow-melt at the beginning of the summer and the same is followed by rainfall a few months later. All this sheds along the banks a lot of fresh alluvial silt which is highly productive and for which no major furrowing and certainly no manuring and irrigation seem to be necessary. Thus, it is this rich silt, spread over vast riverine tracts, that must have produced a major share of the crops. However, evidence for ploughed fields is not wanting. At Kalibangan one such field was revealed through excavation. Though it belonged to the pre-Harappan days, there is no reason to doubt that the pattern continued during the Mature Harappan times. Indeed, it has survived all these millennia and is followed even today in parts of Rajasthan, Haryana, Panjab and western Uttar Pradesh. To recall, the Kalibangan field contained two sets of furrows, crossing each other at right angles and thus forming a grid pattern (pl. XXVII A). Interestingly, these sets lay along the cardinal directions, i.e. one east-west and the other north-south. The intermediary distance in between the east-west furrows was only 30 cm, whereas that in between the north-south ones was 1.90 m. In the modern fields, mustard is grown in the wide-distanced north-south furrows and horse gram in the other (pl. XXVII C). It is not unlikely that a similar arrangement existed during the pre-Mature and Mature Harappan times. In any case, what is noteworthy is the technique of raising two cereals in one and the same field.

For tilling fields, a wooden plough, with perhaps a sharp-ended copper bar attached to its end, seems to have been used. Although a terracotta model of a plough had been found long back at Mohenjo-daro, its identification had not been duly recognized. However, Banawali has now yielded a complete model in the same medium (pl. XXXVII B). These ploughs were drawn by bullocks that constituted a sizable part of the cattle wealth of the Harappans.

It has also been suggested that the Harappans practised canal-irrigation, but the evidence is rather meagre. At the same time, the channelling of overflowing rain-water can be easily visualized.

Although metal (copper) sickles were known to the Harappans, the same do not seem to have been produced in large numbers, perhaps because the metal was costly. However, the presence of a large number of chert blades, many still retaining the gloss on the cutting-edge, indicates that these were used for harvesting. Indeed, in much earlier levels at Mehrgarh have been found stone-blades set with the help of bitumen in a wooden handle. These also bear the sheen. Thus, the practice of using composite stone-blades as sickles, which had been in vogue for a very long time, was continued by the Harappans, saving copper for more useful purposes.

provided food, as indicated by their cut and charred bones. Another noteworthy domesticated animal was the buffalo (*Bubalus Bubalis*). Of the elephant (*Elephas maximus* Linn.), the bones have not been found in large numbers, yet its frequent depiction on seals is noteworthy. In all likelihood it too was domesticated and apart from providing transport it supplied ivory from which many Harappan objects were made.

The camel is conspicuous by its absence from the seals and so is the horse. However, faunal remains of the one-humped camel (*Camelus dromedarius* Linn.) have been reported variously from Mohenjo-daro, Harappa, Kalibangan and Surkotada. As regards the horse, it seems worthwhile to go into the available evidence in some detail, since the matter is greatly debated. Physical remains of the horse (*Equus caballus* Linn.) have been reported, in varying degrees, from Lothal, Surkotada and Kalibangan (Sharma, A.K. 1993). From Lothal comes the second right upper molar of that animal. Referring to it the experts, Dr. Bhola Nath of the Zoological Survey of India and Shri Sreenivasa of the Archaeological Survey of India, state (in S.R. Rao 1985: 641): 'The single tooth of the horse referred above indicates the presence of the horse at Lothal during the Harappan period. The tooth from Lothal resembles closely with that of the modern horse and has pli-caballian (a minute fold near the base of the spur or protocone) which is well distinguishable character of the cheek teeth of the horse.' As for the Surkotada evidence, Professor Sandor Bokonyi, an internationally renowned archaeozoologist and Director of the Archaeological Institute, Budapest, Hungary, wrote on 13 December 1993 to the then Director General, Archaeological Survey of India: "Through a thorough study of the equid remains of the prehistoric settlement of Surkotada, Kutch, excavated under the direction of Dr. J.P. Joshi, I can state the following: The occurrence of true horse (*Equus Caballus* L.) was evidenced by the enamel pattern of the upper and lower cheek and teeth and by the size and form of incisors and phalanges (toe bones). Since no wild horses lived in India in post-Pleistocene times, the domestic nature of the Surkotada horses is undoubtful. This is also supported by an inter-maxilla fragment whose incisor tooth shows clear signs of crib biting, a bad habit only existing among domestic horses which are not extensively used for war.' The few teeth of the horse reported by Ross from Rana Ghundai come from section-scraping and not from a stratified dig, and Zeuner had some reservations even about their identification. The reports on the excavations at Harappa by Vats and Wheeler do not refer to any horse remains nor has the recent work by Dales, Meadow and Kennoyer brought to light any. But Bholanath (1959), on an examination of an unworked collection from this site, did notice the presence of the true horse (*Equus Caballus* Linn.). The identification of a terracotta figurine from Mohenjo-daro (Mackay 1938: pl. LXXVIII,11) as that of the horse is not without doubt. At the same time, it needs to be added that the Harappan levels at Naursharo have yielded doubtless terracotta figurines of the horse (Jarrige *et al.* in press). Also, the middle Harappan levels at Lothal have yielded a couple of terracotta figurines which have been identified as those of the horse. Anyway, one would like to have much more evidence, to be able to say that the horse did play a significant role in the Harappan economy.

Both the cat and dog seem to have been kept as pets. A brick from Chanhu-daro provides interesting evidence regarding a dog chasing a cat. It bears impressions of the paws of the two animals. The deep impression left on the brick when it was still wet suggests pressure resulting from speed, while the overlap of the cat's paw by that of the dog would indicate that the latter was chasing the former. Whereas the dog may have helped in keeping watch over the fields

and even at home, the cat must have kept the rats (*Rattus rattus* Linn.) away from the grains. Interesting is a terracotta figurine of a dog from Mohenjo-daro, depicting the pet wearing a collar around the neck (pl. XLIX B). Monkeys (pL. XLIX A) and parrots also seem to have been kept as pets. There is an interesting terracotta specimen in which a bird (parrot?) is shown within a cage.

The pig (*Sus scrofa cristatus* Wagner) and the fowl were also domesticated and seem to have been used primarily for food. However, the pig may also have served as a scavenger. The fish and turtle were also added to the dietary. Of the fish, quite a few varieties have been identified, for example the *khaggā* (*Rita rita*), *shingarī* (*Mystus aor, M. seenghala*), *rohū* (*Labeo rohita*), etc. The occurrence of a large number of copper fishing hooks at almost all the sites testifies to the fishing pursuit of the Harappans. Certain wild animals also may have been hunted for food. The faunal remains include the spotted deer (*Axis axis* Erxleben), *sāmbhar* (*Cervus unicolor* Kerr), *bārāsinghā* (*Cervus duvauceli* Cuvier), *nīlgai* (*Boselaphus tragocamelus* Pallas), blackbuck (*Antelope cervicapra* Linn.). The Harappans were also fully familiar with the tiger and rhinoceros (*Rhinoceros unicornis* Linn.) which they may have hunted as a game. However, these two animals are no longer available in the region, resulting as much from some change in climatic conditions as from deforestation of the area by the constantly growing population. As regards the unicorn (pl. LIII A), so frequently depicted on the Harappan seals, one wonders if it was real or mythical.

(iii) FOREST AND MINERAL WEALTH

In antiquity man had to depend primarily on the resources that his immediate environment provided. And so had the Harappans. They needed wood not merely for the household needs like cooking food, heating water or just warming up but also for firing billions of bricks at sites like Mohenjo-daro, Harappa, Lothal, etc. For all these, they must have used easily accessible trees in their respective neighbourhoods, such as the *babūl* (*Acacia arabica*), *sirīs* (*Albizzia lebbeck*), *rohiṇī* (*Soymida febrifuga*), etc. However, the evidence for teakwood (*Tectona grandis*) at Lothal (K. Ramesh Rao and Krishna Lal in S.R. Rao 1985: 667-84) is of special interest since the species does not grow in the neighbourhood. The wood must have been brought from either the Gir forests in southern Saurashtra or the eastern forest-belt in Panch Mahals, Surat and the Dangs. This must have necessitated surface-transportation for nearly 200 km. But a case of much longer transportation is that of deodar (*Cedrus deodara* Loudon) used in a coffin-lid at Harappa (Chowdhury and Ghosh 1951). This tree grows in the Himalayas hundreds of kilometres away in the north, and for all one can guess the wood must have been transported through the river. Even today logs of deodar and other high altitude trees are floated down the adjacent river and then collected at convenient points downstream. The rosewood (*Dalbergia latifolia* Roxb), used for the main body of the Harappan coffin referred to above, was, of course, locally available.

The Harappans showed no less dexterity in the exploitation of mineral resources. Since the riverine Harappan sites did not have any lithic or metal sources in their immediate neighbourhood, whatever was needed had to be brought from a distance — sometimes quite considerable. Thus, the major source for the bulk supply of chert, of which long blades and other tools have been found in large numbers at all Harappan sites, seems to have been the Sukkur-Rohri hills, east of the Indus in Sindh. Likewise, most of the supply of semi-precious stones like agate, carnelian, etc., used for manufacturing beads, seems to have been obtained from Gujarat where the

bead-making industry is still alive and kicking. For copper, the Harappans must have looked to the mines in the Khetri-Ganeshwar area in Rajasthan, as indicated by the similarities of impurities in the ore on the one hand and the artefacts on the other. Likewise, lead may have been obtained from the area around Ajmer, again in Rajasthan. All this shows that the Harappans had a great network for exploiting forest and mineral resources, no matter how far they existed. In fact, even from far beyond their territorial jurisdiction, they got some metals and precious stones. Gold, in all probability, was obtained from South India, more particularly from Karnataka. Associated with the old shafts of the Champion Reefs in the Kolar area have been found specimens of the burnished grey ware of the type known from the Southern Neolithic Culture, which was a near-contemporary of the Harappan. With the discovery of Harappan evidence at Daimabad, well south of the Narmadā-Tāptī divide, it should not be difficult to envision a Harappan-Southern Neolithic trade in gold. Harappan outpost of Shortughai in northeastern Afghanistan may have been motivated, amongst other things, by a desire to get lapis lazuli. This mineral may also have come from the Chagai Hills in Baluchistan. What is indeed needed is a chemical analysis of the lapis lazuli artefacts recovered from the Harappan sites and of the samples of the mineral obtained from the mines in Afghanistan and Baluchistan, like what has been done in the case of Shahr-i-Sokhta samples by Delmas and Casanova (1990).

(iv) MARINE RESOURCES

With such a long coastline, extending over hundreds of kilometres from Sutkagen Dor in Baluchistan to Bhagatrav in southern Gujarat, the Harappan Civilization had the full advantage of marine resources. In the first place sea-fish must have been obtained to supplement the riverine supply. Secondly, it was the chank shell (*Xancus pyrum* Linn.) that provided the coveted raw material for preparing bangles, inlays and other ornaments, some of which were items of export as well. But more important than both these was the advantage of the vast coastline itself. This gave the Harappans the most welcome opportunity of engaging in seaborne trade with countries to the west — southern Iran, Oman, Bahrain, Failaka and, beyond these, Iraq (ancient Mesopotamia). Had the seacoast not been at the disposal of the Harappans, one wonders if and how many of the Harappan finds listed in a subsequent chapter on trade would have reached these destinations.

B. ARTS AND CRAFTS

Without getting into the polemics of what is art and what is craft, it is proposed to deal here with both these categories together, since many of the Harappan objects, such as the steatite seals or the famous dancing girl in bronze, are superb examples of both art and craft. We shall begin with metallic artefacts.

(i) METALS

We have evidence of the use of the following metals by the Harappans: copper/bronze, gold, silver and lead. The copper/bronze specimens, which far outnumbered the rest, included a variety of tools for domestic and agricultural purposes, toiletry items, weapons, pots and pans and some objets d' art. The ore, as stated earlier, seems to have been obtained primarily from the Khetri-Ganeshwar mines in Rajasthan. However, some raw material may have come from elsewhere too. During the course of excavations bun-shaped ingots have been found as also evidence about kilns for copper-smelting. D.P. Agrawal (1982: 151), who has made a detailed study of the Harappan metallurgy, is of the view that 'the Harappans knew the

techniques of sinking, "raising", "running-on", cold work, annealing, rivetting [*sic*], lapping, closed casting, *cire perdu*, etc.' The last-named technique is to be particularly noted since it involves the lost wax process. The moulds ranged from simple to well ventilated complex ones. Examples of lapping, i.e. of joining two parts of a vessel, however, appears to be late.

Copper is rather soft and, therefore, it had to be sometimes hardened by alloying it with other materials. These included tin, arsenic, nickel and lead, of which tin was more common than the others. A rough idea as to what percentage of the objects was made from an alloy and what the quantum of alloying with different ingredients was may be had from Agrawal's analysis (*ibid.*): 'Out of the 177 artifacts analysed from Mohenjo-daro and Harappa, only 30% were alloyed. Tin alloying ranged from 1-12%; arsenic alloying 1-7%; nickel alloying 1-9% and lead 1-32%. Tin bronzes were more common than any other alloys.'

The copper/bronze tools included (fig. 8.1): flat axes with splayed out sharp edge, which may have been employed for felling trees or cutting firewood into pieces; straight-ended chisels, the longer examples of which may have even been attached to a wooden ploughshare to make it more effective; sickles, evidently used for harvesting crops (besides the long chert blades referred to earlier); knives with a curved end, a feature typical of the Harappan examples; straight as well as curved saws; plainer-bits used in carpentry; drills; awls; needles (some with the eye near the pointed end). There were the inevitable nails but interesting are the chains, forged by beating one link into another.

From a late Harappan or Jhukar level of Chanhu-daro came an axe with a shaft hole. Though admittedly not a common type, it was also not an aberration, as indicated by two models of the type in clay from Mohenjo-daro. However, an axe in combination with adze with a shafthole in between is rather a rarity in the Mature Harappan repertoire since so far only one example is known, from a late level of Mohenjo-daro. Curved fish-hooks, with a loop at one end and a sharp conical projection at the other, were used for angling, while hollow-based arrowheads (without tang) were evidently hafted on a cane and used for hunting. Typical of the Harappa Culture are also the curved-in razors. These remind one of the famous limestone statuette of a priest from Mohenjo-daro which has a shaven upper lip. Circular mirrors, a very high polish on which had the capacity of reflecting the face, have been found from practically all Harappan sites. These have a tang which may have been inserted into an ivory handle. Amongst ladies' ornaments may be noted bangles, rings (single or spiralled) and a variety of ear-studs. Hairpins with single- or double-spiral heads were used. Sometimes animals were also portrayed at the head of the hairpins.

Besides the above-mentioned arrowheads, there is evidence for tanged spearheads. Often these are thin and flat-sectioned. From the late levels, however, come examples which have a tang and a medial rib rendering the cross-section a kind of lozenge with sharp edges. Sometimes there are holes near the junction of the blade and the tang suggesting that the tang was inserted into a cleft wooden handle and tied to it with a string. While thinking in terms of possible weapons with which the Harappans could have fought a war, it is these long spears that may have to be considered, besides probably the above-mentioned arrowheads, though the latter are rather small. That is about all. And then there is no evidence of any shields, body-armours or helmets — items met with in Egyptian and Mesopotamian contexts. It would thus appear that the Harappans were

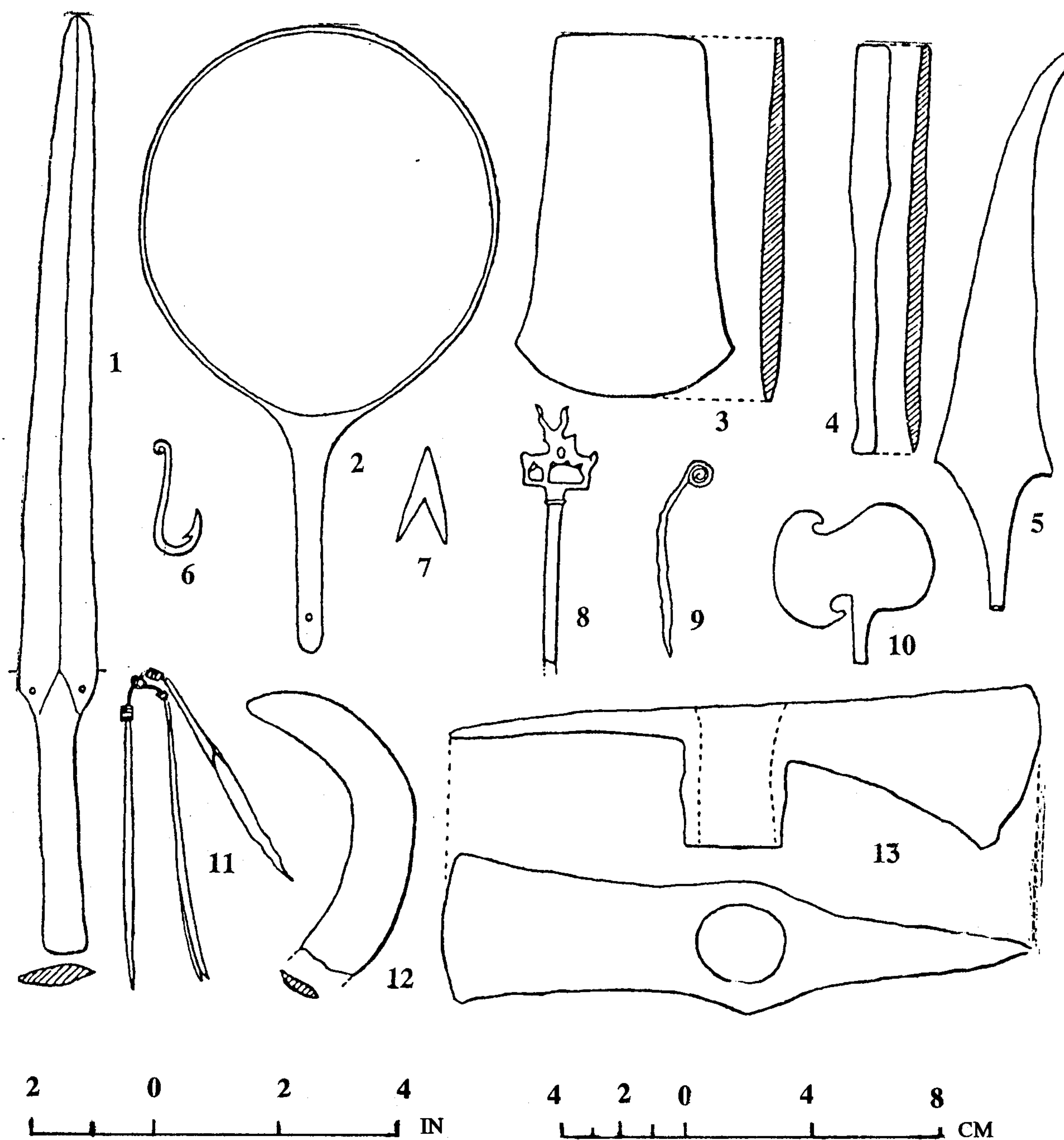


Fig. 8.1 Copper/bronze tools, Harappan Civilization

ill-equipped for major warfare.

Copper/bronze was used also for producing human and animal figurines. From Mohenjo-daro comes the famous example of a dancing girl (pl. X B). She is naked and stands relaxed, the right leg somewhat straight but the left one bent. The flexed right hand is posed against the right hip, while the left one, heavily bedecked with bangles, rests on the left knee. From behind the neck descends a necklace with the pendant dangling between the breasts. The face is somewhat lifted up, as if in a haughty attitude. The eyes are large, and the nose is somewhat broad. The hair is curly and taken back in a bunch. The ankles and feet are missing. But there is another piece from Mohenjo-daro itself which shows (unfortunately only) these limbs wearing an anklet. Thus, in all likelihood our dancing girl too wore the same ornaments at the ankle-level. Though only just a little over 11 cm in height, the figure depicts the various features so vivaciously that it has rightly been recognized as one of the masterpieces of Harappan art.

Figurines of a variety of animals were also produced. These included the elephant, dog, ram, hare and swan, besides a very lively and forceful buffalo from Mohenjo-daro and an equally realistic short-horned, humpless bull from Kalibangan (pl. XI B). No less noteworthy is a couchant bull from Lothal. Even vehicles are represented in copper: there are two almost identical, small (about 5 cm in height) models of carts, perhaps chariots (?). Unfortunately, the wheels are missing. The roof is gabled, sides are closed, but back and front open. In the front is seated a driver. One of these specimens comes from Harappa and the other from Chanhu-daro — 650 km apart. In view of the near-identity of the two pieces, it is not improbable that both of them were manufactured at one and the same place.

With the Harappans copper/bronze does not seem to have been a rare commodity, since even pots and pans were made from it (fig. 8.2). Almost all the shapes reproduced in metal were copied from their earthen counterparts. The more noteworthy were goblets, vases, sagger-based dishes and flanged cooking *hāṇḍīs*. The long-handled frying pan was perhaps the only type which occurred in metal but not in pottery. Pedestalled, short (about 8-10 cm in height), slender and narrow-mouthed vases may have been used for keeping collyrium or some kind of scent.

Though much smaller in quantity than copper/bronze, silver was the metal next in frequency, in any case more than gold. Of silver, not only were ornaments made, but vessels as well. The latter copied many of the shapes in copper. Amongst the ornaments, which included a variety of beads, attention needs to be drawn to a boss with shell-inlay and a buckle with gold-capped beads and a soldered scroll of gold wire.

It has been held that on the Indo-Pakistan subcontinent silver was used for the first time by the Harappans. This, however, does not seem to be true. Even the pre-Harappans were using this metal in considerable quantity, as indicated by the discovery of a large number of silver objects from Kunal in Haryana (pls. V A and B). As stated earlier, radiocorbon dating places the pre-Harappan occupation at this site well in the first half of the third millennium BC. It is, however, difficult to pin-point the source exploited by the pre-Harappans to obtain this metal.

Of gold, no vessels, even tiny ones, were made, evidently because of its rarity and cost. However, ornaments were frequent. These included a variety of beads — micro-beads, barrel shaped ones, some flat and discular with axial holes (pl. V C), amulets, pendants, rings, broaches, etc. One of the spacers found at Lothal has ten holes, indicating the same number of strings in the necklace concerned. Thin, elongated, conical pieces with a hole

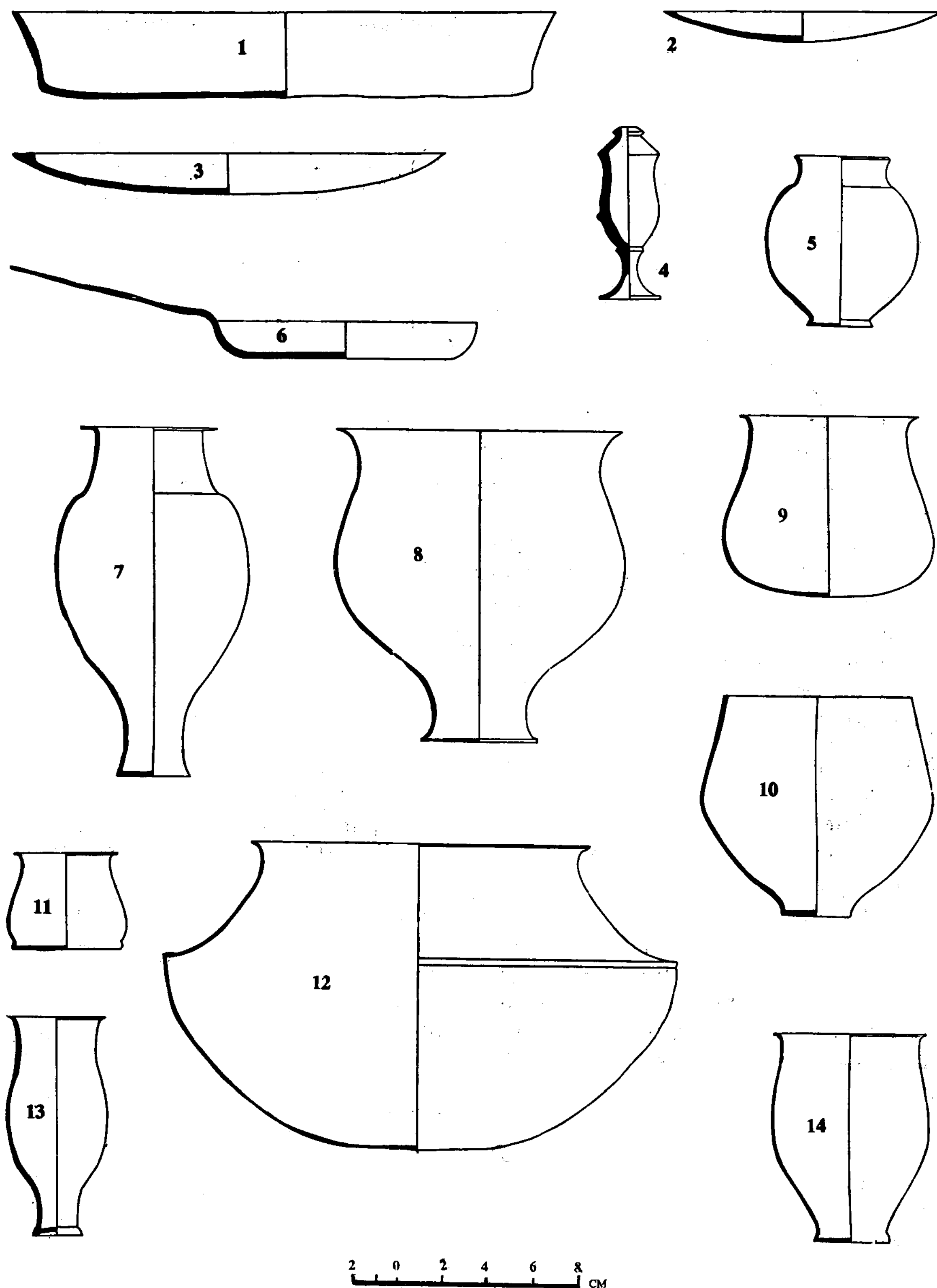


Fig. 8.2 Copper/bronze vessels, Harappan Civilization

near the thinner end may have been ear-pendants of a type used even now in India. However, no less interesting is a hollow conical ornament which is even today worn by rural womenfolk in Rajasthan and Haryana, in the middle of the upper part of the forehead where the hair parts sideways. It is known as *chauk*. Attention may also be drawn to the circumstantial evidence regarding the occurrence of a small, thin, discular plate with two perforations on the margin. It was found at Lothal on an altar where an animal had been sacrified and may, thus, have had some ritualistic significance. In this context, the excavator (Rao 1985: 634) reminds us of the ornament worn on the forehead by the famous 'priest' from Mohenjo-daro (pl. IX).

Lead was yet another metal used by the Harappans. Of it, besides ingots, some vases and plumb-bobs have been found. The nearest source for lead may have been around Ajmer in Rajasthan, though it may have as well come from either South India or Afghanistan.

(ii) ART IN STONE

In the previous section we referred to human and animal figurines in copper/bronze which were excellent examples of art. However, no less attractive are certain statuettes in stone, found at the two metropolitan cities, viz. Mohenjo-daro and Harappa, in the Indus basin. It is strange, yet a fact, that no stone statuette has so far been found either in the Ghaggar-Sarasvatī valley in the north-east or in the Gujarat region in the south, although in the latter area Dholavira has shown that the Harappans could chisel and polish even large-sized stones converting them into elegant parts of pillars. Perhaps further excavation at this site may one day give us a surprise, as indeed it did with the pillars.

Put together, the stone sculptures are a little over a dozen, of which at least five are particularly noteworthy. One of these is the well-known figure of a priest (pl. IX). It was found at Mohenjo-daro at a depth of about 1.5 m below the surface, and may thus belong to an upper level. Made of limestone, it is about 18 cm in height and consists only of the upper part. It has well-combed hair dropping behind the neck. A well-groomed beard is shown by parallel lines in relief. In contrast, however, the upper lip is shaven. Around the forehead goes a band which is tied behind and falls back farther down from the neck. A discular piece attached to this band about the middle of the forehead may probably have had some special significance. The eyes are half closed, as if the priest is in a meditative pose. The figure wears a shawl which passes from underneath the right arm but goes over the left shoulder, thus covering the left arm. It has a design of trefoils which, it is reported, were originally filled with red paste. It has also been noted that when discovered one of the eyes had a shell inlay. Whom does the statuette represent has long been a matter of debate. Some see in him a priest-king (but the figure was found in the Lower Town and not in the Citadel), while others would like to call him just a priest. This latter association seems to be prompted by the meditative eyes, the band with a circular piece on the forehead (a similar disc in gold was found at Lothal in association with a sacrificial altar), and the shawl which is often put on in winter, amongst others, by *sādhūs* (mendicants).

Found at a depth of about 2 m in another part of the Lower Town, a 17-18 cm tall limestone head is in many ways similar to the head of the foregoing figure. The hair is closely set, wavy and tied by a fillet. The beard is well marked out and the upper lip, as in the other case, shaven. The ears, however, are highly stylized, oval in outline with a hole in the lower part. The expression of the face is rather queer, now further accentuated by inlay-less wide open eyes.

There is, however, a noteworthy statuette from the Citadel too. Made of alabaster, it is of a seated male, about 28 cm in height. While the exact details of the lower garment cannot be easily made out, there is little ambiguity about the upper one — a shawl worn in almost the same style as that by the priest. The head, unfortunately, is missing, but the tail of the hair can be seen at the back.

Though the above-mentioned three figures do not come from the same area, nor are these made of the same kind of stone, yet, if visualized collectively, they make up a reasonably intelligible picture of a male, seated, wearing a lower garment and a shawl, having well-organized hair tied with a fillet and shaven upper lip: perhaps someone in particular?

There are two stone statuettes from Harappa which also deserve special attention, though both are small — less than 10 cm in height. They show a treatment and technique quite unparalleled at Mohenjo-daro. Made of red sandstone (?), one of them is perhaps intended to represent a naked youth with well-built yet supple and sensuous body (pl. X A). On technological count, it needs to be pointed out that there is a hole in the frontal part of each shoulder wherein may have been fixed the arms. There is also a socket in the neck, evidently to hold the head which, unfortunately, is no longer there. The other figure also represents a male. However, its uniqueness lies in its somewhat twisted body and one of its legs lifted and thrown sideways, as if in a dancing pose. It is thought to be a prototype of Śīva Natarāja (god Śīva in a dancing pose), though it must be remembered that actual examples of Śīva Natarāja are far removed in time and space.

Wheeler has cast reflections on these figures from Harappa. He says (1968: 89): 'So outstanding are their qualities that some doubt must for the present remain as to the validity of their ascription to the Indus period'. This is being subjective rather than objective. In the first place, let it be recalled that one of these figures was found in the well-known granary area itself and the other also in the same general area at a depth of about 1.5 m. Hence both are well within the Harappan context. Secondly, on the mound concerned at Harappa there is no evidence of a subsequent occupation after the protohistoric period. Thirdly, from the stylistic point of view too, though these figures are no doubt unlike the general run of the Mohenjo-daro ones, there is nothing so far known from the later period of Indian sculptures that evinces a technique and style similar to that of the Harappan statuettes. The 'doubt', one would feel, must for the present be shelved until and unless something artistically and technologically similar is found in a post-Harappan context. A view held by some scholars that these Harappan figures evince a 'Greek touch' is also equally untenable, since these specimens do not show the characteristic muscularity of the Greek sculputres.

That the art in stone was not confined only to human figures is shown by some specimens of animals as well. Of these, one is particularly noteworthy. About 25 cm in height (of which a part accounts for the pedestal), it represents a composite animal: a seated bull, with ram's horns (the head is damaged) and elephant's trunk. Whatever their implication, such composite figures are common on the Harappan seals.

(iii) GLYPTIC ART

On the high pedestal of the trinity of Mature Harappan arts and crafts one must place, beside the bronze and stone statuettes, the steatite seals bearing engravings of an exquisite order. For, who is there who does

not get overwhelmed by the grace and majesty of the Brahmani bull with a well-proportioned body, prominent hump, tall incurved horns, powerful face and a large, swinging dewlap (pl. LVI A). And so also is the depiction of some other animals, of humans and demi-gods and even of narrative scenes. Indeed, whereas stone and bronze sculptures of a comparable or even higher order did exist in the contemporary civilizations of Western Asia and Egypt, these did not produce anything to match the artistic Harappan seals.

Found at almost every urban centre of the Harappan Civilization and, in fact, constituting one of the distinctive traits of the Mature Phase, the seals exceed over two thousand in number, and more are pouring in with every new excavation. Though there are variations in size, shape and execution, the more common Harappan seals were squarish, each side measuring somewhere between 2 and 3 cm. With an average thickness of about 50-60 mm, these had on the reverse a convex perforated boss through which a thread could pass for suspension (pl. LIII A). Some of the seals, however, were rectangular or even circular. The few examples of cylinder seals found in the Harappan context (e.g. the one from Kalibangan, pl. XV A), however, are exotic. The animal figures and/or inscriptions are in intaglio, so that when sealed the commodity had the impression in relief. The process of manufacturing the seals seems to have been like this: First to cut the stone (steatite) into the required size and shape, and then to smoothen the surface with some abrasive. On the surface thus finished fine burin/chisel was used to engrave the animals/human figures/other designs/signs of the script, as the case may be. After the engraving had been done, a coating of alkali was applied and then the seals were heated to harden them and give a white shining look.

Amongst the variety of subjects depicted on the seals, the most common one was that of an animal with an inscription above it. Of the animals too, it was the so-called 'unicorn' that outnumbered the rest. It is thought that this animal may have been a bull with two horns of which only one is seen in the side-view, one horn completely covering the other. But it is equally likely that, as mentioned earlier, the animal may have been mythical. In front of the animal is a vertical object which, in the absence of a more definite identification, has been called a 'brazier'. The other animals included the short-horned bull (pl. LVI B), Brahmani bull, tiger, buffalo, rhinoceros, elephant (pl. LVI C), etc. Then there were composite animals and even human and animal combinations (pl. LVI D). Thus, one type combined the hind part of a tiger, the front part of a ram/unicorn, the horns of a bull, the tusks and trunk of an elephant, but a human-like face. In another case, the body was similar to that of a unicorn, but the three heads that it possessed were those of the short-horned bull. While one of the faces, bent down, looked earthwards, the second one, raised up, looked towards the sky, and the third, turned round, looked backwards (pl. XIV B). Did it, in any way, signify the down-to-earth present, the sky-vast future and the left-behind past? Whether such a philosophical approach was indeed there in the mind of the Harappan artist or of the person who ordered the seal to be made can at best remain a guess. But sure enough there was something more in the depiction than just a three-headed animal which, in any case, was not real. Then there are certain seals which do not appear to be of a secular character: these will be dealt with later when the religious beliefs of the Harappans are considered (Chapter XI). Likewise, the nature of the script and the language involved will also be discussed later (Chapter IX).

(iv) OF CLAY: TERRACOTTAS AND POTTERY

Clay was no less important a medium than metal and stone for the Harappans to express their craftsmanship and artistic sen-

sitivity. This was done through the agency of terracottas as well as pottery. The former included figurines, both human and animal, and other varieties of objects. The figurines were by and large hand-modelled, there being only rare cases when a mould was used. The clay was fine and well levigated. After the modelling of the figurines, a wash or slip was applied. The firing was good. The human figurines represented both sexes. Of these, for whatever reason, the females outnumbered the males. The more common female figure is characterized by a thin waist, broad hips with a loin-cloth and a girdle. From the neck hang down series of necklaces, the lowest one almost touching the girdle. The nose is pinched up, the mouth slit and the eyes are indicated by applied roundels. Over the head is a fan-shaped gear, projecting from the lower part of which there is, on each side, a pannier (pl. XLVII C). Soot-marks noted on some of the panniers suggest that the same may have been used as lamps. These figures have often been taken to represent the Mother Goddess, though it is difficult to be sure of the same. However, the depiction in a few cases of a child adjoining the breasts or on the hip (pl. XLVI B) may suggest some association of fecundity. Perhaps the same idea may have led to the production of some female figures with an unusually large belly (pl. XLVI A), indicative of pregnancy (?) or of others lying on a bed, sometimes with a child (pl. XLVII A).

The male figures are less elaborate (pl. XLVII B). Some of them show a small goat-like beard. However, a head from Kalibangan deserves special mention, since in spite of its small size (hardly 6 cm in height), it shows clear facial features and reminds us of the head of the limestone figure of the priest (?) from Mohenjo-daro. There is a category which also calls for attention: it shows humans in what look like yogic *āsanas* (fig. 14.5 and pl. XIII A). If such an identification is correct, it would show the high antiquity of the yogic system which has continued in India down the ages. Whatever their use, religious or just as toys, the horned masks are also very interesting (pl. XLVIII B).

The animal figurines far outnumber the human ones. These include most of the animals depicted on the seals, for example, the bull, rhinoceros, elephant, etc., and a few others such as the pig, monkey and dog. As regards the horse, while the specimen from Mohenjo-daro is doubtful, there are clear examples from Nausharo (Jarrige *et al* in press). Lothal has also yielded a couple of examples of that animal. Two bulls, one each from Mohenjo-daro and Kalibangan (pl. XI A) deserve special mention. These show the animal with all its vigour and dash and are more than a match for such representations in copper/bronze. Some terracotta figurines are to be noted for their ingenuity, for example, a bull with a mobile head and a monkey with a hole (pl. XLIX A).

Amongst other terracotta objects, besides pottery to be discussed next, were: models of carts with solid wheels, of a type still in use in Sindh and Panjab; flesh rubbers; feedings cups with cow's (?) head and nozzle (pl. XII B); small cones; discular spindle-whorls; beads probably used as net-sinkers; whistles usually in the form of birds with a hole; hollow, pallet-stuffed spherical rattles; cubical dice bearing small blind-hole markings — generally 1 opposite 2, 3 opposite 4, and 5 opposite 6 (though variations are not wanting). Finally, mention must be made of the so-called 'cakes'. These were of several varieties. Some were flat and triangular, usually with rounded off corners. Their use has been a matter of debate. Other categories include spheroid or oblong pieces usually with finger-grooves, which may perhaps have been used as projectiles.

A detailed analysis of the Harappan ceramics in terms of time and space is a crying need, for though some variations have

no doubt been casually noticed these have to be worked out in full. Thus, for example, the pointed bottom goblet seems to have belonged to a rather late stage; likewise, the pronounced drooping of the dish-rim in the case of the dish-on-stand was a late feature. On the other hand, the painted designs were much richer in the earlier stages. Then there were certain regional types too. For example, the stud-handled bowl can very well be regarded as a Gujarati innovation. At certain sites in that region, e.g. at Dholavira in Kutch, the painted designs were less emphatic. However, despite the time-space constraints, there are many shapes and painted designs which can easily be classified as typically Mature Harappan and here we shall spell them out.

Made of well-levigated clay and essentially wheel-turned, the Harappan pottery can be classified as a well-fired, sturdy red ware, often slipped and painted with a variety of floral and pseudo-geometric designs and even, though much less frequently, with human and animal forms. Monochromy —a rich black colour — was the rule, but there were exceptions, howsoever rare, when besides black, buff and red colours were also used. Perhaps these were a legacy from the rich Baluchistan tradition. In just a few cases even green and white were applied.

The kilns in which the pottery was fired were also well designed. Circular on plan, these were partitioned into two chambers, a lower and an upper, separated by a floor having a number of well-spaced holes. The lower chamber, most of it being underground, was meant to hold the fuel. Into it firewood was inserted through a lipped opening at the ground-level. The heat and thin flames travelled through the abovementioned holes into the upper chamber wherein sun-dried pots had been placed for firing. There was an overall domical covering of clay with a partial opening at the top to allow an exit for the smoke.

As is to be expected, the pot-forms were dictated by various needs of the people (fig. 8.3). Thus, there were the flanged *hāṇḍīs* for cooking, and relatively large but shallow bowls to hold the cooked material. Both these seem to have been covered with lids which were provided with a knob for easy handling. Then there were the platters on which to place the foodstuff while eating. Large, discular *chakalās* with small legs (fig. 7.3, 15) were used for preparing the bread. For drinking water there were the flat-based cups and beakers. It has been surmised that the pointed bottom goblets were also used for the same purpose. However, it is obvious that these could not have rested on their bottoms. Thus, one had, in one go, to fill these up, drink the content and place them upside-down. The large beakers must have held water or some other more precious liquid (some kind of wine?) and were kept by the side for consumption during the meals. For the storage of water, there were pitchers and for that of grains, still larger jars. Some of these storage jars had a narrow bottom and it is likely that these were embedded in the ground. The very distinctive jars with an S-shaped profile, often richly painted (fig. 8.6), were evidently used for the storage of precious commodities. Hollow ring-stands seem to have been used for lending support to some of the foregoing vessels. Then there were two other distinctive types, viz. the dish-on-stand and cup-on-stand. While the former was more suitable for holding solids and semi-solids, the latter seems to have been used for keeping liquids like curries and soups. The large basins are likely to have been used for heavy-duty jobs involving water, such as for bathing, the washing of clothes, etc. For providing light, when needed, there were different types of lamps, the more common, however, being small cup-like specimens with pinched-up lip for holding the wick. In many cases, soot-marks may still be seen. However, enigmatic remain the tall cylindrical jars with hundreds of perforations (fig. 8.3, 9). It has

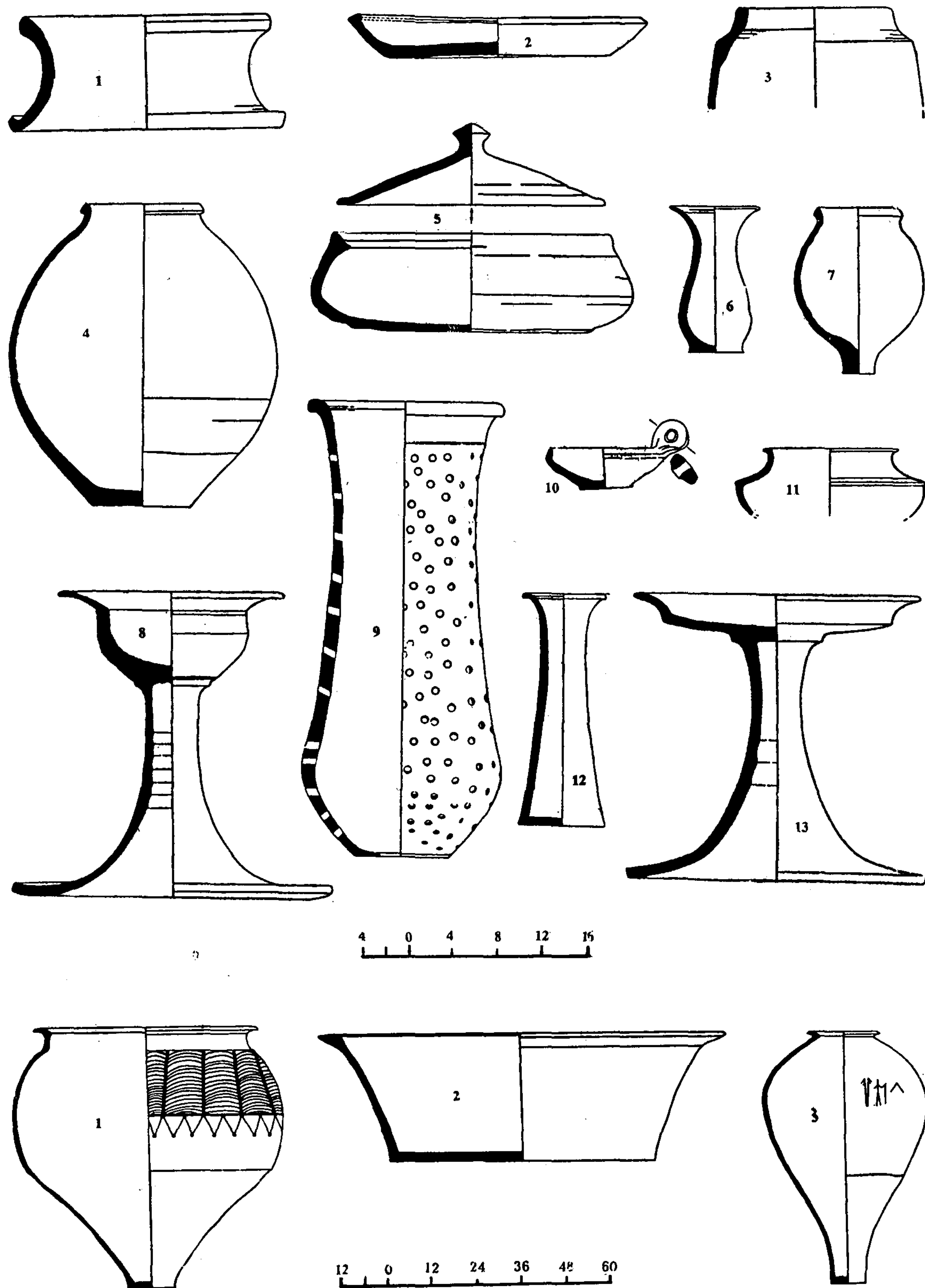


Fig. 8.3 Pottery types, Harappan Civilization

been surmised that these were braziers and contained burning charcoal, for general heating; but unmistakable charring marks seem to be wanting on the available specimens. Another view (Rao 1985: 339) has it that these were used 'for pouring water in *avabhrita snāna* (sacred bath) during a sacrifice'. According to still another view, these were used in the process of extracting juice from the Soma plant (*soma-rasa*) and even Vedic verses have been cited in support. However, there could have been a much simpler use for such a vessel, viz. to store in it items of raw food, such as vegetables and fruits, requiring both protection as well as ventilation. Anyway, the matter remains unsettled and the enquiry must go on.

The painted designs varied from simple bands to quite intricate and interesting ones, some of which throw light on otherwise unknowable aspects of the Harappan Civilization. Amongst the geometric or near-geometric designs may be noted intersecting circles, alternately hatched squares forming a sort of chessboard pattern, fish-scales produced by rows of small arches one above another, etc. The floral motifs included rosettes, the distinctive pipal-leaf and banana and acacia plants. Without these motifs one would have not known that the banana was cultivated as far back as the Harappan times. The other trees throw light on the environment. Amongst the faunal portrayals, mention must be made, besides the elegant peacocks and cranes, of a she-goat (or doe?) suckling her young one, noted on a potsherd from Harappa. No less interesting is a painting from the same site, depicting a man carrying on his shoulder an equipoise with large nets on either side (fig. 8.4). Likewise, there are other noteworthy portrayals. In one case two snakes are depicted with upraised hoods, as if hissing, underneath a tree with stretched out branches and in another, a snake is seen coming out of an ant-hill, while another is about to enter it from the back (Rao 1985, fig. 74, nos. A7, and A6).

However, more exciting are two other paintings. In one case (fig. 8.5) are shown a deer, a pitcher and a crow. There are two trees, one in front of the deer and the other separating the deer from the pitcher and the crow. The deer, though moving forward (as indicated by the front left leg) turns its head and looks at the crow and the pitcher, as if in some kind of amazement. The crow seems to have just raised its beak up from the jar which is right below its head. The scene is reminiscent of the popular story of 'The thirsty deer and the crow'. According to this story, the deer had failed to drink water since the water-level in the pitcher was low and it could not insert its head deep into it, whereas the crow somehow managed it by inserting small pebbles into the pitcher and thereby raising the water-level to a height to which its beak could conveniently stoop. The other story is no less telling (fig. 8.6). In this painting two birds are perched on the branches of a tree. Each one holds in its beak a fish which hangs down. (True to the perspective, the front bird and fish are shown somewhat larger than the ones behind.) Above these birds are legs of other birds, suggesting that some have flown away, perhaps after dropping down their preys. The lower right part of the panel is damaged, but there seems to have been some object, shown with criss-cross hatching similar to that of the fish and the birds. In the lower left part of the panel there is some animal whose legs and perhaps tail can be made out. Close to it is a hatched object. It is probable that the animal was meant to be a fox, and if that be so, it is not unlikely that the artist may have had in his mind the story of 'The cunning fox'. In this story, the fox, wanting to snatch away the food from the crow praised the latter that it could sing well and the latter, feeling flattered, foolishly opened the mouth to sing, thereby dropping the morsel which the fox collected and ran away. If correctly identified, these stories would indicate an interesting continuum in Indian

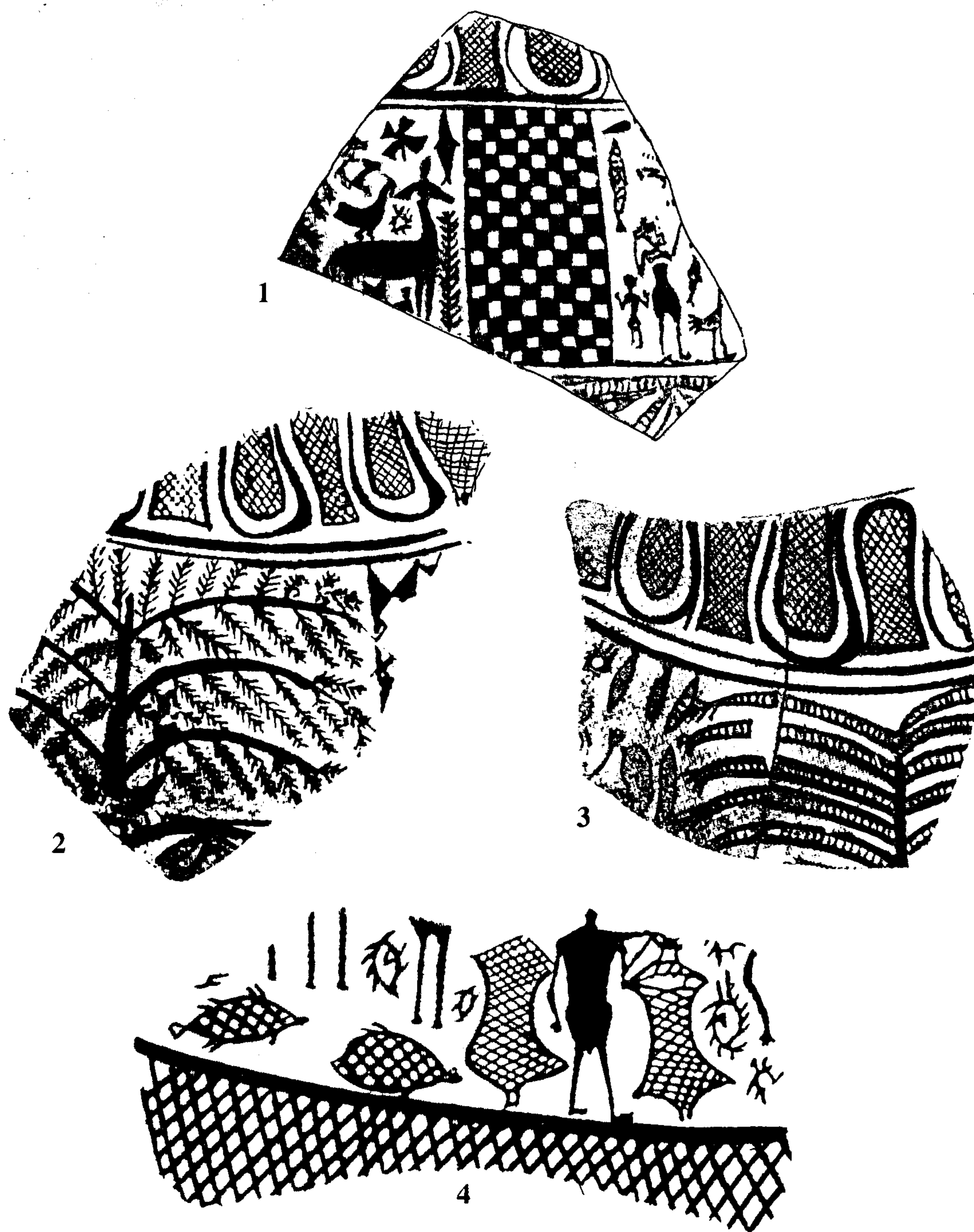


Fig. 8.4 Harappa: Some painted designs on the pottery

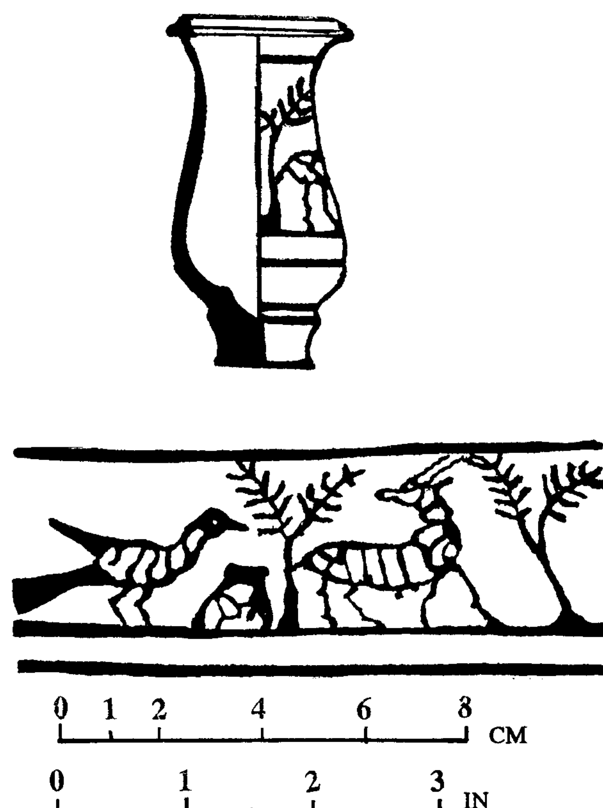


Fig. 8.5 Lothal: Painted vase, Period A

folklore. These also find a mention in the *Pañchatantra*, a Sanskrit text ascribable to early historical times.

Though quite a few other categories of crafts were practised by the Harappans, we propose dealing here with only the following: ivory-carving, shell-working, bead-making and the preparing of objects in faience, steatite and chert.

(v) IVORY

During the early historical times, India was known for the export, amongst other things, of ivory-carvings. Who is there who is not familiar with the exquisitely carved first century BC-AD figure of goddess Lakshmī discovered in the buried city of Pompeii in Italy or with the most remarkable and near-contemporary hoard found at Begram in Afghanistan? What the state of affairs was during the proto-historic times we are not very clear about, but if the identification of the Indus valley with Meluhha of Mesopotamian inscriptions of the third millennium BC is justified, it may be recalled that ivory constituted one of the various items of import from Meluhha into Mesopotamia. Unfortunately, very little has survived of this material which one can really boast of. At the same time, there is enough evidence of ivory-working at least at Mohenjo-daro and Lothal. The objects of toiletry produced in this material comprise combs, hair-pins, antimony rods, mirror-handles, etc. Other objects included ear-ornaments, gamesmen, a few knives for sophisticated use, a couple of seals and scales. A scale found at Lothal is of great interest (pl. L A). Though damaged, it shows at least thirty divisions. (More will be said about the Harappan system of linear measurement when we discuss trade and commerce.) Rao (1985: 630) also refers to something rather unusual: 'A small tapering rod of ivory on which stains of red ochre are seen at the tip must have been used for decorating lips or nail-tips. A chemical examination of the pigment reveals that a paint has been applied.'

(vi) SHELL

Adequate supplies being available from the seacoast, sites nearer to it specialized in the manufacture of objects from seashells, including such varieties as the chank (*śaṅkha*). In this context, it is worth noting that the chank variety is found only on the Indian coasts, and there too it seems to be limited to the Gulf of Mannar and Kathiawar. Amongst other sites, Lothal in Gujarat, Balakot in southern Baluchistan and Chanhu-daro in Sindh have yielded ample evidence from which various stages in the manufacture of different objects can be reconstructed. The finished objects included: beads, pendants, rings, bracelets, a variety of inlays, ladles,

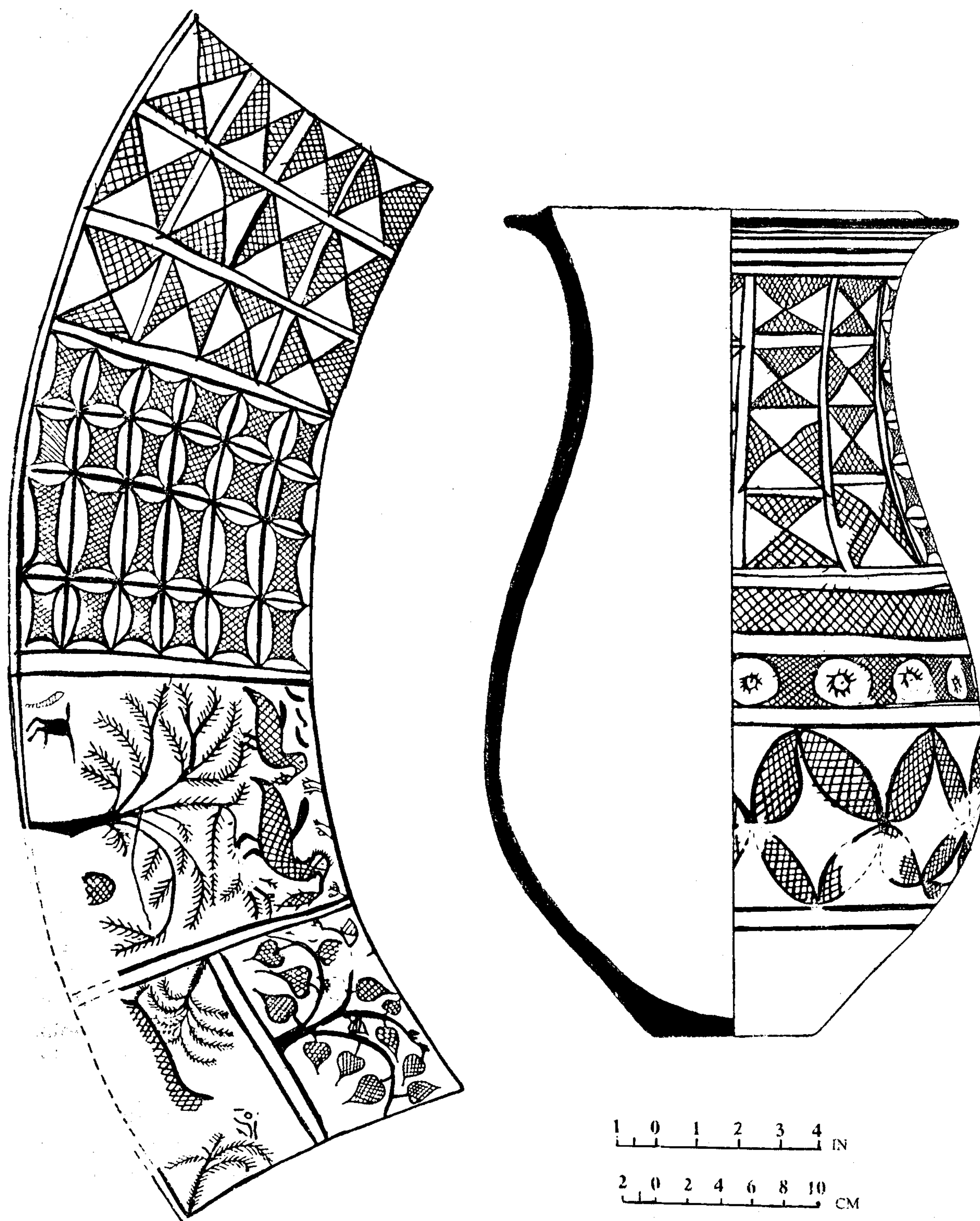


Fig. 8.6 Lothal: Painted jar, Period A

bowls, engravers, knives, gamesmen, etc. The excavator of Lothal is inclined to identify a shell object found at the site as a compass which may have been used 'in fixing the alignments of the roads, lanes and house-walls'. It is a hollow cylindrical piece with four deep grooves at each of the upper and lower rims. The grooves are so arranged that if cords are passed through the grooves joining the opposite ones on the top and similarly at the bottom, the cords would intersect at the centre and 'the eight angles so formed measure exactly 45° each' (Rao 1985 : 616).

(vii) LAPIDARY

Beads, like other ornaments, were made from a variety of materials amongst which a reference has already been made to gold, silver, copper, shell, etc. Here we shall consider the manufacture of beads of semi-precious stones and then of faience and steatite.

Two sites, viz. Chanhu-daro and Lothal, have yielded ample evidence of the process involved in the preparation of beads of semi-precious stones. Since Chanhu-daro had been cited extensively in earlier publications, we shall discuss here the Lothal evidence which is relatively less known. It his report, Rao (1985: 580) states: 'A bead factory with a working platform in the open courtyard surrounded by eleven rooms has been laid bare in Block E near the acropolis. Two earthen jars, one containing 582 carnelian beads and another containing 212 beads of carnelian, shell and steatite, were found embedded in the platform. Several cores, flakes, ground and unbored beads were scattered all over the courtyard and in the rooms around. To the northeast of this factory is a kiln used for baking the raw material and finished product. Another important evidence for suggesting that the mud-brick structure with a working platform surrounded by workers' room was a bead-factory is that a flanged drill-bit of bronze used in boring stone beads was found near the factory.' (See pl. XL B for a kiln used in bead-making.)

There is a good deal of evidence —literary, inscriptional and travellers' accounts — to show that the manufacture of beads has all through the ages been a specialization of the people of Gujarat; and it is so even now. Perhaps it may interest the reader to have an idea of the present-day process, which Rao records as follows (1985: 581): 'Nodules of agate (but not chert) are slowly heated in small pots embedded in an earthern furnace or pot-kiln filled with sawdust to soften the cortex. These baked nodules, smoky in colour, are then removed and by a process of flaking with a small hammer of stag-horn the cortex is removed. In doing so the nodule is held against a pointed iron bar between the fingers. Not much force is used while striking. Thereafter the lump is broken to the required size and the requisite shape is given by gradual controlled flaking using pressure-technique. Polishing is done in a rotary drum in which beads and sand are put together. After polishing boring is done from two ends using two drills hafted on hand-borers. The drill-points are fixed at the centre marked at either end. A fine abrasive and water are used at the working ends of the drills to facilitate boring. ... After boring, the beads are heated once again to obtain a deeper colour. Calcium and an oxidizing agent such as ferrous oxide, a common ingredient of the soil, are used in this process.' It stands to reason that a similar process was used by the Lothal Harappans, except, of course, that the bar used in flaking was that of copper/bronze instead of iron.

An additional technique was that of etching the beads, primarily those of carnelian. There were two ways in which the design-*cum*-effect was obtained. On the red surface of carnelian the desired pattern, usually the eye

or figure of eight or lozenge, was drawn with a solution of alkali (usually soda) and then the bead was heated to such a degree that the alkaline material entered the softened stone and settled there. This produced a white-on-red design. There are some beads with a black design on a white surface. In this case the entire surface of the bead was covered with alkaline material making it white, and then, most probably with copper nitrate, the black design was produced. The significance of the etched carnelian beads is that these were not only used by the Harappans themselves but were also exported and have been found at sites like Kish, Tell Asmar, Ur, Shahdad, etc. in Western Asia. Besides carnelian and agate, other semi-precious stones used for manufacturing beads included jasper, onyx, chalcedony, crystal, amethyst, turquoise, lapis lazuli, etc. While turquoise seems to have been imported from Turkmenia, lapis lazuli was evidently imported from Afghanistan, where there existed, as already stated, the Harappan colony of Shortghai.

Found in thousands and sometimes representing necklaces *in situ,* the very tiny white beads naturally excite one's curiosity as to how these were made. The smaller of them have a diameter of about a millimetre and a thickness far short of that. A variant shape is micro-cylindrical instead of discular. Steatite, the raw material, for these beads, was very finely powdered and made into a thin paste. Thereafter, according to one view, the paste was rolled over a thin wire or thread and heated up, and then sliced into thin wafers. Another view is that these beads may have been obtained by pressing the paste through a fine-gauge bronze tube. Yet another noteworthy type in the same material has the shape of a barrel or a truncated bicone and bears trefoil designs obtained through a process of carving and in-filling. Microbeads of the type mentioned above have been found in the Royal Cemetery at Ur and were evidently imported from a Harappan site. In this context, faience beads, sometimes with as many as six segments, also call for attention, since such beads too have been found at West Asian sites. Faience was obtained by fusing lime with quartz at a very high temperature. The fine glaze on the surface seems to have been due to silica which is naturally present in quartz.

(viii) STONE TOOLS AND OTHER ARTEFACTS

Though the Harappan civilization has rightly been placed in the Copper/Bronze Age because of substantial use of that metal, it must nevertheless be admitted that stone tools continued to play what may be called a complementary role in the day-to-day needs. Thus, one notices at some Indus sites the occasional presence of roughly flaked, large, rectangular celts which may have been used in agricultural operations and for felling trees and cutting firewood. The raw material for these, usually chert, was obtained most likely from the Sukkar-Rohri hills in Sindh. From the same material were manufactured long ribbon-like blades, detaching them from the core by using the 'crested ridge' technique. Although most of these blades were used as plain knives without any secondary working, there are doubtless examples with retouch. As mentioned elsewhere, backed blades (and maybe even the ordinary ones) were hafted on a wooden handle and used for harvesting crops as suggested by the sheen on their working edge. Through retouching were also obtained serrated blades, used for sawing, and pointed-tip tools used most likely for boring. Some specimens show even a tang for hafting and may have been used as arrowheads, An important category made from chert was that of weights to which we shall refer a little later while dealing with trade and commerce. Objects, made from other kinds of stone, included sling balls, querns, mullers and pounders. Sometimes even bowls and dishes were made of stone.

C. TRADE AND COMMERCE

Though it is still not a fully resolved issue as to how exactly the Harappan Civilization achieved its maturity, there can be little doubt that intensive agricultural production and large-scale trade played a significant role in raising the civilization to its economic and socio-cultural heights. To begin with, the trade must have inevitably been internal, i.e. between one Harappan zone and another, and it must have been only gradually that external trade also assumed its significance.

Earlier, while dealing with individual sites, we noted in certain cases the kinds of objects that were specifically manufactured there. For example, we showed that at least Lothal in Gujarat and Chanhu-daro in Sindh were centres for lapidary. At both these places has been found ample evidence for the manufacture of beads — lumps of raw material, waste-flakes, specialized kilns, beads in various stages of preparation, copper drills, etc. Chanhu-daro is also to be noted for manufacturing steatite seals. As in the case of beads, in this case as well, the evidence was found in terms of lumps of raw material, metallic tools and seals in various stages: some with unfinished animal design and some others with incomplete inscription. Evidently, unlike the beads, the seals must have been manufactured under special prior orders from clients. Another very specialized category of objects, viz. chert weights, also seems to have been manufactured at Chanhu-daro. Balakot, not far from the Arabian seacoast and Lothal near the Gulf of Cambay, have both yielded ample evidence regarding the existence of a flourishing shell-industry. Bracelets and other ornaments worn by the Harappans in various inland areas must have been obtained from either Balakot or Lothal or similar other coastal centres. Metallic objects, however, are likely to have been manufactured at many a place throughout the length and breadth of the Harappan domain: amongst the more conspicuous sites may be noted Harappa, Mohenjo-daro, Lothal, etc. It is also not unlikely that there were some centres for the production of profusely painted pots of specialized shapes, such as the S-shaped one, though the mass of ordinary pottery must have been produced locally or nearby. All told, there is ample evidence of internal trade in a variety of industrial and semi-industrial objects, besides, of course, agricultural produce. The large-sized granaries encountered at Harappa and Mohenjo-daro testify to grain-procurement from adjacent areas.

The occurrence of artefacts of the Mature Harappan style outside the Harappan domain and of foreign objects within the Harappan cultural zone may indicate anything ranging from a mere visitation of individuals from one area to the other to indirect or even direct trade. Admittedly, in establishing the existence of regular trade-contacts between the Harappan Civilization and other contemporary western civilizations, the literary evidence, which reinforces what archaeology has to offer, is mainly one-sided. Thus, for example, while the Mesopotamian documents do throw some light on the issue no such light can be had from the Harappan side, since we are still groping in the dark in so far as the decipherment of the Harappan script is concerned. In spite of all these handicaps let us first recount briefly the Harappan or Harappan-like objects found elsewhere and objects of foreign origin found within the Harappan territory.

We shall begin with the westernmost areas, though the evidence in their case is rather meagre and debatable. Rao (1985:477) refers to a terracotta mummy-like figure from Lothal and thinks that it may indicate Indo-Egyptian contacts. Dilip K. Chakarabarti (1990: 40), however, citing the opinion of an Egyptologist, has reservations about the affinity. While the terracotta figure may be the representation of a mummy, certainly much

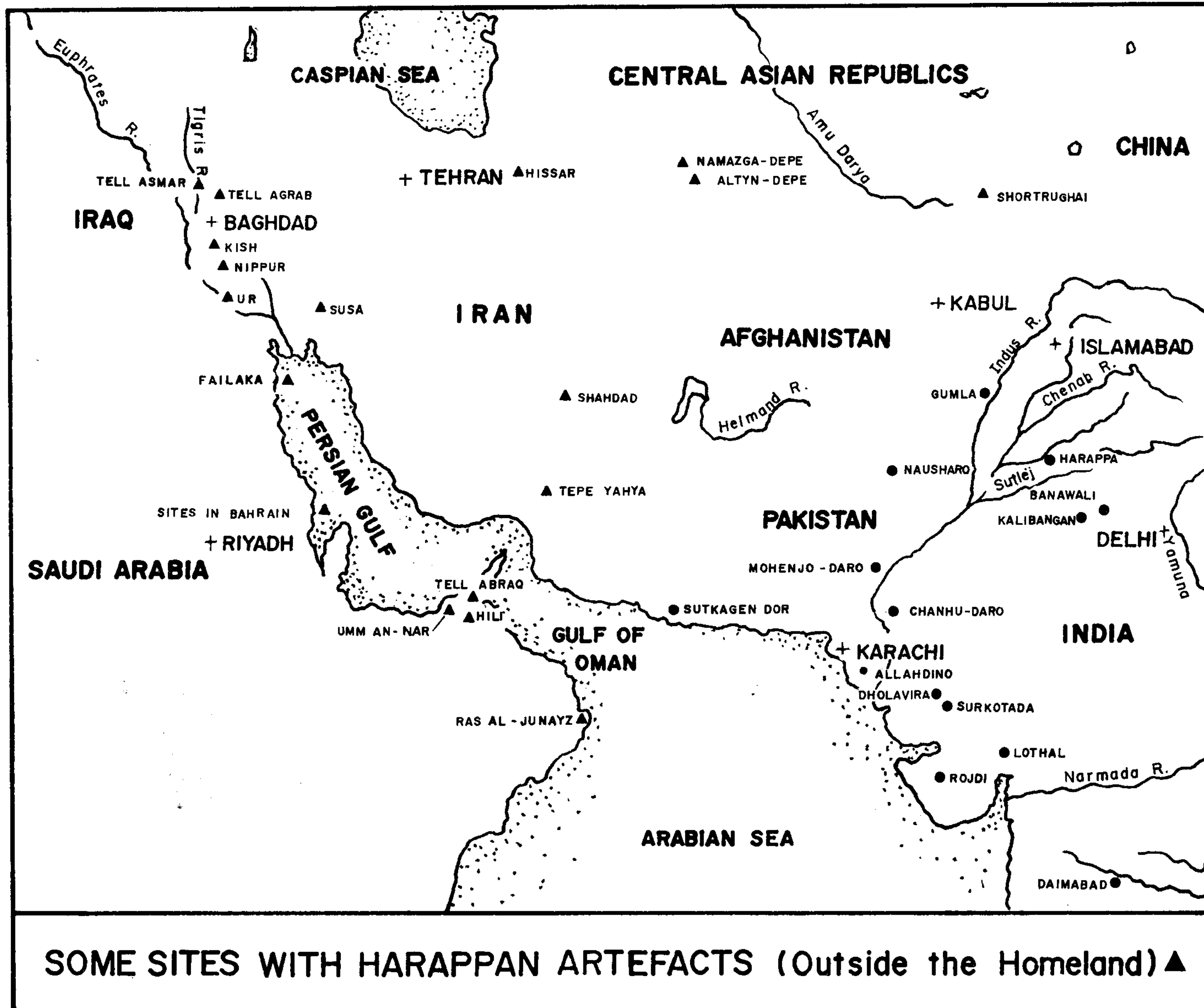
more evidence is needed to establish an Indo-Egyptian give-and-take in the third millennium BC. A cylinder seal from Hama in Syria has been taken to indicate Harappan influence, since it depicts a short-horned bull. However, the evidence is too sketchy to think in terms of any direct trade.

Beyond both Egypt and Syria is the island of Crete, well renowned for its Minoan Civilization. Amongst the more favourite scenes associated with this civilization are those of bull-grappling and bull-sacrifice. These scenes are echoed in some of the scenes on the Harappan seals and it is thought that the similarity may not be just accidental, but may indicate a kind of cultural interaction. To this evidence has been added that of segmented beads of faience. Spectrographic analysis of one such bead from Knossos and another from Harappa has shown absolute identity in respect of the composition of the core as well as that of the glaze, suggesting at the least a common source for both of them. These pieces of evidence, however meagre, do set one hoping that future fieldwork might bring to light fuller evidence of an envisaged Indo-Cretan contacts.

However, when we move eastwards we find that a variety of objects either of actual Harappan workmanship or produced under Harappan influence have been found at a large number of sites in Mesopotamia, such as Ur, Tell Asmar, Kish, Lagash, Umma, Nippur, Tepe Gawra, Tell Agrab and Ashur (fig. 8.7). The categories involved are: seals, beads, dice, terracotta figurines, objects of conch shell and ivory, etc. In terms of Mesopotamian periodization, the objects come form various contexts, viz. Pre-Sargonic, Akkadian, Post-Akkadian, i.e. Ur III and Isin-Larsa and even Kassite, which cover a wide range — broadly from a little before the middle of the third millennium BC to about the middle of the second. The period accords reasonably well with the all-inclusive lifespan of the Harappan Civilization, i.e. from its maturity to the stage of its gradual transmutation and subsequent petering out.

In 1932, just after a decade of the discovery of the Harappan Civilization, C.J. Gadd published his classic paper, 'Seals of Ancient Indian Style found at Ur'. However, typologically many of his seals do not really belong to the Harappan style wherein the seals are usually square or rectangular, bear the figure of an animal as well as an inscription in the characteristic script. Many of Gadd's seals are round or cylindrical, and these two shapes are typical respectively of the 'Persian Gulf' and Mesopotamian types. But leaving the shapes aside for a while, it must be stated that at least six of Gadd's seals bear inscriptions in the typically Harappan script and some of them depict the bull as well. Then there are some which have the bull motif, though no Harappan inscription. The fact that some of these Harappan-inscription-bearing seals are round in shape need not upset their assessment, since, as is most likely, the shape may have been influenced by that of the 'Persian Gulf' type. After all, the Harappan merchants must have been in touch with those of the Persian Gulf, resulting in a lot of give and take. Visualizing a similar situation, one can also explain the occurrence of the few round and cylindrical seals bearing Harappan theme and inscription and occurring at the Harappan sites themselves. Whatever be the niceties of the arguments, the occurrence of these seals at Ur did point to a trade-contact between the two civilizations.

To the Ur seals may be added quite a few from other sites. For example, from regular excavations at Kish came two seals, which are either square or rectangular (not round or cylindrical) and bear not only the bull with a manger in front but also typical Indus characters. Stratigraphically, one of these seals is



SOME SITES WITH HARAPPAN ARTEFACTS (Outside the Homeland) ▲

Fig. 8.7

Sargonic, while the other decidedly antedates Samsu-iluna (ca. 1749-12 BC). Likewise, one seal from Lagash, coming from the Larsa period, is also rectangular and bears Harappan characters. Another seal from the same site also bears Harappan script but it is round in shape and its stratigraphy doubtful. Nippur is yet another site to have yielded a typical Harappan seal: square in shape, showing a bull and an inscription in the Indus script. It was found 'in very salty debris above a floor in a Kassite house dating perhaps to the 14th century BC. Further work is needed to date the house more precisely.' Another important seal comes from Tell Asmar. Though it is cylindrical in shape and does not bear an Indus inscription, yet it has doubtless Indus influence because of the scene it depicts: an elephant and a rhino in a row, with a crocodile above them — a composition met with on a Mohenjo-daro seal. More than that, along with this seal there occurred a pot with barbotine surface-treatment, heart-shaped bone inlays, etched carnelian beads and an alabaster seal bearing a design of concentric squares. The stratigraphy of the entire lot was Akkadian. Reference may also be made to a terracotta rectangular seal from Tepe Gawra, which, though not having the typical bull-and-inscription motif, has nevertheless a motif not unfamiliar in the Harappan context. It may be Akkadian or perhaps even earlier. In addition to the foregoing, there are at least three other seals of Harappan association from Mesopotamia but their exact provenance is not known or is doubtful.

Reference here may also be made to a clay-lump on which there is the impression of a Harappan seal (with a bull and an inscription in the typical script) on one side and of cloth and string-knot on the other. This piece was not obtained from an excavation but is stated to have come from Jokha, a site in southern Mesopotamia and identifiable with ancient Umma. From the details of this clay-lump it is evident that it served to seal a container on which the cloth was wrapped and then a string tied. Such seal-impressed clay-lumps have been found at many Harappan sites. Indeed, as stated earlier, at Lothal as many as sixtyfive such pieces were found in the warehouse which had accidentally been destroyed by a fire.

Beads constitute another important category showing Indo-Mesopotamian trade. These fall into two broad types: one is distinctive because of its shape and the other because of the etching on it. The former is barrel-shaped and is usually 5-8 cm in length, but in exceptional cases may be even up to 12 cm. The material used could be of any of the semi-precious stones, viz. chalcedony, agate, carnelian, or lapis lazuli. Such beads have been found at Kish and Ur and were associated with levels ranging from pre-Sargonic to Isin-Larsa. However, more noteworthy and profuse are the etched carnelian beads. These come from a larger number of sites than do the long barrel ones, viz. besides Ur and Kish, from Nippur, Tell Asmar, Ashur, Abu Salabikh, etc. The etched designs also show a good deal of variety. In addition to straight or zigzag bands, these include concentric circles, rows of triangles and squares, figure resembling the Arabic numeral 8, etc. (pl. LII B). The main concentration of these beads is broadly between ca. 2600 and 2000 BC, with some spilling over, however, to a later date.

Cubical dice, made of ivory or clay and marked with dots numbering from 1 to 6, are typical of the Harappan Civilization and alien to the Mesopotamian. Thus, their occurrence at sites like Tell Asmar, Tape Gawra, Nippur and Ur is naturally of interest, though altogether not more than half-a-dozen specimens are involved. In point of time, the earliest occurrence was in the Early Dynastic period, while one example occurred as late as the Kassite level.

To the foregoing list of objects of Harappan origin may be added three terracotta figurines from Nippur, ascribable to a period around 2100-2000 BC. These are pot-bellied figures with a deep navel and are distinctively ithyphallic — a feature clearly non-Mesopotamian but, on the other hand, quite at home in the Harappan context. Then there are some objects of conchshell from Ur, Kish, etc., which may have had something to do with India, since conchshell is not found in Mesopotamia but is available in the Gulf of Mannar and along the Kathiawar coast, both in India.

While the last-named few specimens may be subject to debate, it is quite clear that there is a vast amount of other categories of objects, particularly the seals, beads and dice, which leave no doubt about the Harappan presence in Mesopotamia, with a concentration around 2400-2200 BC, but having started as early as 2600 BC and sporadically visible even after 2000 BC.

Descending down the Tigris-Euphrates valley, one comes to the Persian Gulf. This region too has produced ample evidence of Harappan contacts. Near the head of the Gulf is the island of Failaka from where two seals, both bearing Harappan inscriptions, have been found. One of these, in terms of its shape, however, is clearly of the Gulf style itself. This one is not so well stratified, while the other is assignable to the Kassite levels.

Down the Gulf is the island of Bahrain. Over here are two sites, viz. Ras al-Qala and Barbar which have yielded artefacts either directly of Harappan origin or made under Harappan influence. Incidentally, Ras al-Qala is likely to have been the capital of Dilmun, one of the three regions mentioned in Mesopotamian texts in connection with trade. From the second city of Ras al-Qala, assignable to the Barbar period (equivalent to the Akkadian), have come about half-a-dozen stone cubes which not only in shape but also in weight correspond to the Harappan weights. Interesting, however, is the fact that the same building also yielded a dozen seals of the Persian-Gulf style. This co-occurrence of the weights and seals is clearly suggestive of the fact that the Persian-Gulf and Harappan merchants were partners in trade, serving Mesopotamia on the one hand and the Indo-Pakistan subcontinent on the other. That Ras al-Qala was also not bereft of seals influenced by the Harappan style is clearly evidenced by the occurrence there of two specimens which, though round (not rectangular) in shape, bear characteristic Harappan motif and signs. One of these, rather corroded and showing only the hind part of a bull and traces of two Harappan signs, is assignable to the second city referred to above. The other, better preserved and bearing five Harappan signs and the bull, however, is late, assignable to the Isin-Larsa times in terms of the Mesopotamian framework. Another important point to be noted about Ras al-Qala is its town-planning, which follows the gridiron pattern. It is probable that this sort of planning was under the influence of the Harappan Civilization where such town-planning was almost a must.

At Barbar have been found a few perforated stones and *liṅga*-shaped gamesmen which are reminiscent of their Harappan counterparts though the evidence in their regard is not all that clinching. However, a bronze mirror with a human figure constituting a part of the handle does remind one of an almost similar specimen from the Mehi Culture which in turn was contemporary with the Harappan.

In 1984-85 a team of Indian archaeologists, under the leadership of K. M. Srivastava, excavated a series of burial mounds at Hammad on the island of Bahrain. In one of the graves (no. 1757) the team came across a steatite seal which, though round (not square)



Fig. 8.8 Seal from Bahrain with Harappan inscription

in shape, bears an inscription as well as motifs which are decidedly Harappan. Placed along the circumference, the inscription has four letters in the typical script. At the bottom is a bull (unicorn?) in a sort of charging mood and in the middle of the seal there is a peacock, looking back (fig. 8.8). Srivastava is inclined to assign this seal to between 2200 and 2000 BC and adds (1991:27): 'Since the sequence of letters on the seal from grave no. 1757 is almost similar to that from Mohenjodaro, it is likely that the merchant was of Indus Valley origin.' Extending the argument, one might perhaps add that since the seal is made in the typical Gulf shape and the peacock too is not so well done as it would have been by a Harappan artist, it is most probable that the Harappan merchant had settled down for long and got the seal made by a Bahrain (Dilmun) artist, who really could not grasp fully the form of the peacock.

Proceeding further south in the Gulf, one strikes the horn of Oman. To the west of this peninsular horn is the island named Umm an-Nar. Over here some thirty years ago during the course of an excavation of a few cairns, assignable to a period between early and late third millennium BC according to one view and to ca. 2200-1800 BC according to another, one etched carnelian bead had been found, which set off the idea of Harappan-Omani contacts during the third millennium BC. Since then a good deal of material, not only from this island but also from the mainland Oman (from various sites such as Hili, Shimal, Maysar, Ras al-Junayz, etc.), has come to light fully establishing these contacts (Chakrabarti 1990; Edens 1993; Potts 1993; Cleuziou 1984; Tosi 1993; Cleuziou and Vogt 1985). While some of the items could be specifically regarded as imports, others may have been produced locally under Harappan influence. In the former category may be placed: etched carnelien beads from Umm an-Nar and Hili; one cubical chert weight from Shimal and two from Tell Abraq; a potsherd bearing at least four Indus characters, a typically Harappan carrot-shaped storage jar also having three incised signs and an ivory comb having dot-in-circle design, a square steatite seal — all from Ras-al-Junayz; and so on. In the second category may be put a great deal of pottery which may not have been actual import (though in some cases that cannot altogether be ruled out) but seems to have been produced under Harappan influence. On some pottery specimens there occur typical Harappan designs like the pipal leaf and peacock (e.g. from Hili) which are quite foreign to Oman. Again, from this region also come parts of pedestalled bowls/dishes bearing concentric rows of thumbnail incisions (fig. 8.9) — a pattern, again, typically Harappan.

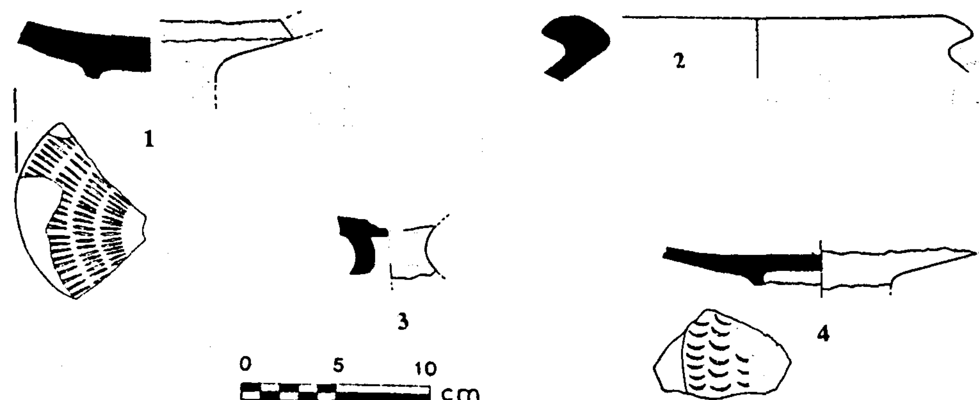


Fig. 8.9 Harappan pottery from Oman

The above-mentioned material is only a sample of what has been excavated during recent years in the Oman peninsula. However, it clearly demonstrates the Harappan-Omani contacts in the late third and early second millennium BC. Maybe further excavations reveal evidence going back even somwhat earlier. In any case, the Omani peninsula must have been used as a convenient halting area by the sailors coming all the way from Lothal *via* Sutkagen Dor, before entering the Persian Gulf. Oman's several oases as well as those of Bahrain must have provided the much needed fresh water. In the course of time some of these merchants may have settled down in the Gulf region and, along with their Gulf counterparts, may have helped in the conduct of trade between the two major civilizations of the time, viz. the Harappan and the Mesopotamian.

Before we leave the Persian Gulf for an eastward trip along the Iranian coast towards the Indus delta, it may be well worthwhile enquiring if there is any evidence regarding Harappan contacts with sites on the Iranian side of the present-day border with Iraq, i.e. east of Tigris-Euphrates valley. The answer is not discouraging. The Akkadian levels of Susa have yielded at least one long barrel-shaped bead and quite a few etched carnelian beads. From the Akkadian (or post-Akkadian?) levels also come two seals, one of which, circular in shape, shows a bull and six Indus characters, while the other, cylindrical, shows a bull with manger and a few characters resembling those of the Harappan script. This shows that the large-scale Harappan contacts with Mesopotamia had some impact on neighbouring Elam as well.

To resume the coastal survey east of the Persian Gulf, towards the Indus delta. Unfortunately, so far no seaport site in this southern Iranian region has been excavated. However, within two hundred kilometres from the nearest seashore is the site of Tepe Yahya whose Stratum IVA, ascribable to a period around 2300 BC, has yielded a potsherd bearing the impression of a rectangular stamp-seal with Harappan characters. Although some scholars have tried to discount its significance saying that the impression being pre-firing may just be a decorative motif, the argument does not seem to carry much weight since many pots at the Harappan sites themselves have been found to bear such pre-firing impression of seals. There are two more Harappan-related finds from the same stratum of Yahya, viz. an etched carnelian bead and a 'terracotta cake'-like object bearing the impression of a square seal, though uninscribed.

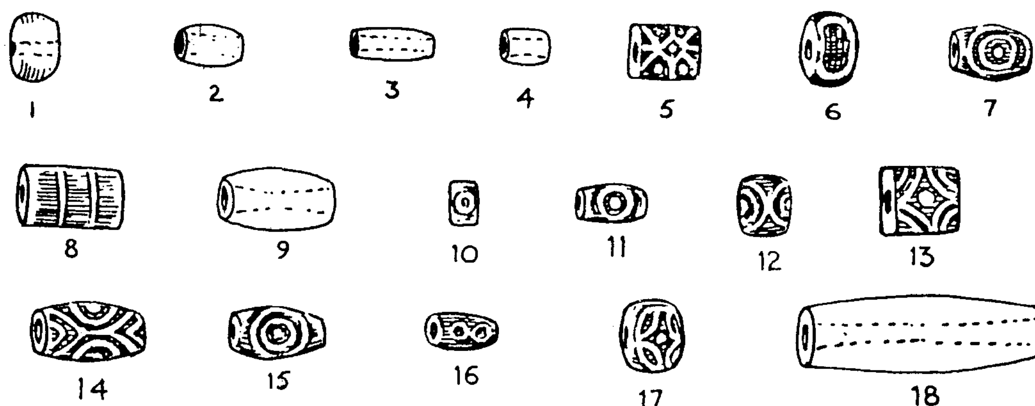


Fig. 8.10 Etched carnelian beads from Shahdad

Shahdad is another site in southern Iran which has yielded some Harappan-related material. It includes a fairly large number of etched carnelian beads (fig. 8.10), besides compartmented boxes and a handled copper mirror. While the latter two items, being of much wider occurrence, may or may not be of very great significance, the etched carnelian beads doubtless are (Asthana 1984). Shahdad being much inland, it is equally likely that a land-route may have connected it with the Harappan region. That there did exist land-routes through which the Harappan objects were disseminated is rather self-evident from the occurrence of etched carnelian beads at Hissar and Shah Tepe, in levels ascribable broadly to ca. 2300-1800 BC. At Hissar there also occurred bronze mace-heads and spear-heads which have their parallels at Harappan sites. Shah Tepe and Hissar, both in northern Iran, must have been served by land-routes, like Central Asia and Afghanistan discussed below.

There are other areas too in Iran which have yielded evidence of Harappan contacts. For example, in the Luristan region have been found not only etched carnelian beads but a few Harappan-related seals as well. Of the latter, at least one bears a short-horned bull and four characters of the Harappan script. The site of Jalalabad on the Fars plains too has yielded etched as well as barrel-shaped beads of carnelian. It would appear that of all Harappan exports the carnelian beads were ubiquitous.

In Turkmenia (Central Asia) lies the site of Altyn-Depe wherefrom have been recovered copper and ivory objects, beads, some pottery-shapes and seals which are reminiscent of the Harappan Civilization (fig. 8.11; Masson 1988; Gupta 1979; Shchetenko 1968). Thus, leaf-shaped spearheads without medial rib and frying pans with long flat handles, besides some chisels and sickles, remind one of similar objects in the Harappan copper assemblage. Likewise, ivory artefacts, such as small square-sectioned sticks bearing marks on the four faces and cubical dice marked variously with concentric circles, parallel oblique lines, etc. recall specimens of the same category in the Harappan Civilization, though these may not be exactly alike. In this context, it may be worth noting that ivory is not indigenous to Central Asia whereas it is so to the Harappa Culture zone. Segmented faience beads, found at Altyn-Depe, also form a part of the Harappan repertoire, though it must be admitted that these

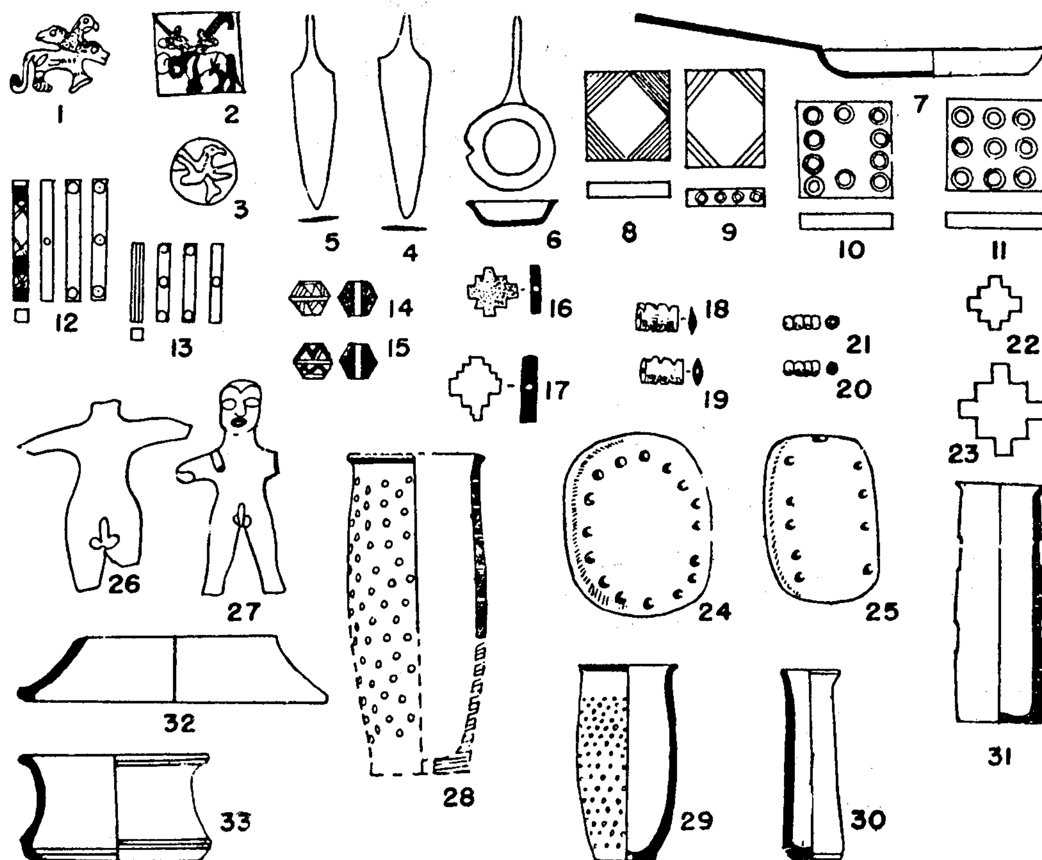


Fig. 8.11 Comparable artefacts from Harappan and South Turkmenian sites: nos. 2, 3, 5, 7, 11, 13, 17, 19, 21, 23, 27 and 29 from Mohenjo-daro; 25, Chanhu-daro; 9, 31 and 33, Harappa; 1, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 28 and 32, Altyn-Depe; 22, Khapuz; 26 and 30, Namazga

have also been met with at West Asian sites. Perforated cylindrical vases so characteristic of the Harappan pottery have also been found at Altyn-Depe. However, no less important than the forgoing are a stone seal and a silver pendant, again from Altyn-Depe. Square in shape, the seal bears two distinctive signs of the Harappan script (pl. LII C). It has been argued that these symbols may have been derived form the Proto-Elamite script, but there seems to be little weight in that argument. The silver pendant depicts a three-headed animal in the well-known Harappan style, though the details of the heads in the two cases are not exactly identical. At the same time, the conceptual analogy cannot be lightly brushed aside.

From Namazga, another noteworthy site in Turkmenia, comes an ithyphallic figure in terracotta, recalling Mohenjo-daro examples. In fact, the very concept is non-Central Asian. Mention may also be made of a cylindrical vase from this site which is of a type so well known in the Harappan pottery-complex.

All the above-mentioned objects from

Turkmenia are assignable broadly to ca. 2500-2200 BC — a time well within the range of Harappan Civilization at its peak.

Coming to Afghanistan we find that its northern areas have yielded ample evidence of Harappan contacts as compared to the southern ones. From certain graves in the Bactria-Margiana region (though the graves had been looted and hence their stratigraphy is not well documented) come certain objects of copper/bronze, such as spiral-headed pins, mirrors having anthropomorphic handle, mace-heads, shaft-hole axe-adze and compartmented seals, which have their parallels in different levels of the Harappan sites (Sarianidi 1979). It is also interesting to note Sarianidi's observations on two other objects (*ibid.* 654): 'Let us merely add that tessellated alabaster mosaic was encountered at Dashly 3, individual details of which represented the humped bulls; surfaces were decorated with scratched drawings of the trefoil, exactly imitating analogous adornments on the clothes of the well-known statue of the "priest" from Mohenjo-daro. Also found in Bactria were small steatite vessels in the form of a kidney, sometimes decorated with branches bearing the leaves of the pipal, the famous tree of the Indian subcontinent.'

However, the most interesting evidence comes from northeastern Afghanistan, where it is not the question of a few objects making their appearance in a local *milieu*, but of a full-fledged settlement of the Harappans themselves. The evidence, therefore, needs to be stated in some detail.

Located in the basin of the Amu Darya and its left tributary, the Kokcha, the ancient site of Shortughai is about 5 km from the former river and about 25 km from the latter. The mound is rather small, covering about 2.5 hectares, and has yielded only 2.5-3 metres of occupational deposits (Dupree 1981; Francfort 1984a and 1984b). However, it is the Harappans and none else who started off the site (Period I) and continued with it in Period II. (Period III is post-Harappan and IV, clearly ascribable to the Bishkent Culture). The houses of Periods I and II were made of mud bricks in the typical Harappan ratio, viz. 4:2:1, the actual size being 32 x 16 x 8 cm. Some of the rooms were also paved with bricks of the same size; and the walls even today stand to a height of about 2 metres.

The pottery of Periods I and II (fig. 8.12) was characteristically Harappan, evidently made at Shortughai itself for such a mass of material could not have been carried all the way from the Harappan region. The types included even the more distinctive ones like the dishes-on-stand, perforated jars, beakers, etc., and the painted designs displayed equally characteristic features like the intersecting circles, pipal leaves, peacocks, etc. (It may, incidentally, be noted that the pipal tree and the peacock are quite foreign to that region.) The terracotta objects included the distinctive 'cakes' and parts of toy-carts, besides the head of a typical Indus figurine. Then there were the etched carnelian beads and discoidal gold ones with axial perforation. Bangles made from *Xancus Pyrum* Linn. are again noteworthy because this material is not locally available, but occurs along the Gujarat seacoast. There were many other typical Harappan objects, but special mention must be made of Harappan graffiti on pots and, above all, of a seal showing the rhinoceros along with Indus signs (fig. 8.13). All the foregoing items leave no doubt that it was the Harappans themselves who colonized the area. But when and more importantly how and why? The time indication is given by a number of radiocarbon dates from the site, which, though often erratic, do yield a reasonable picture. There are five dates for Period I, as follows: 2651/2649/2610 BC (Sample NY-430); 2580 BC (NY-425); 2455/2416/2405 BC (MC-2446); 2542/2427/2395/2374/2366 BC

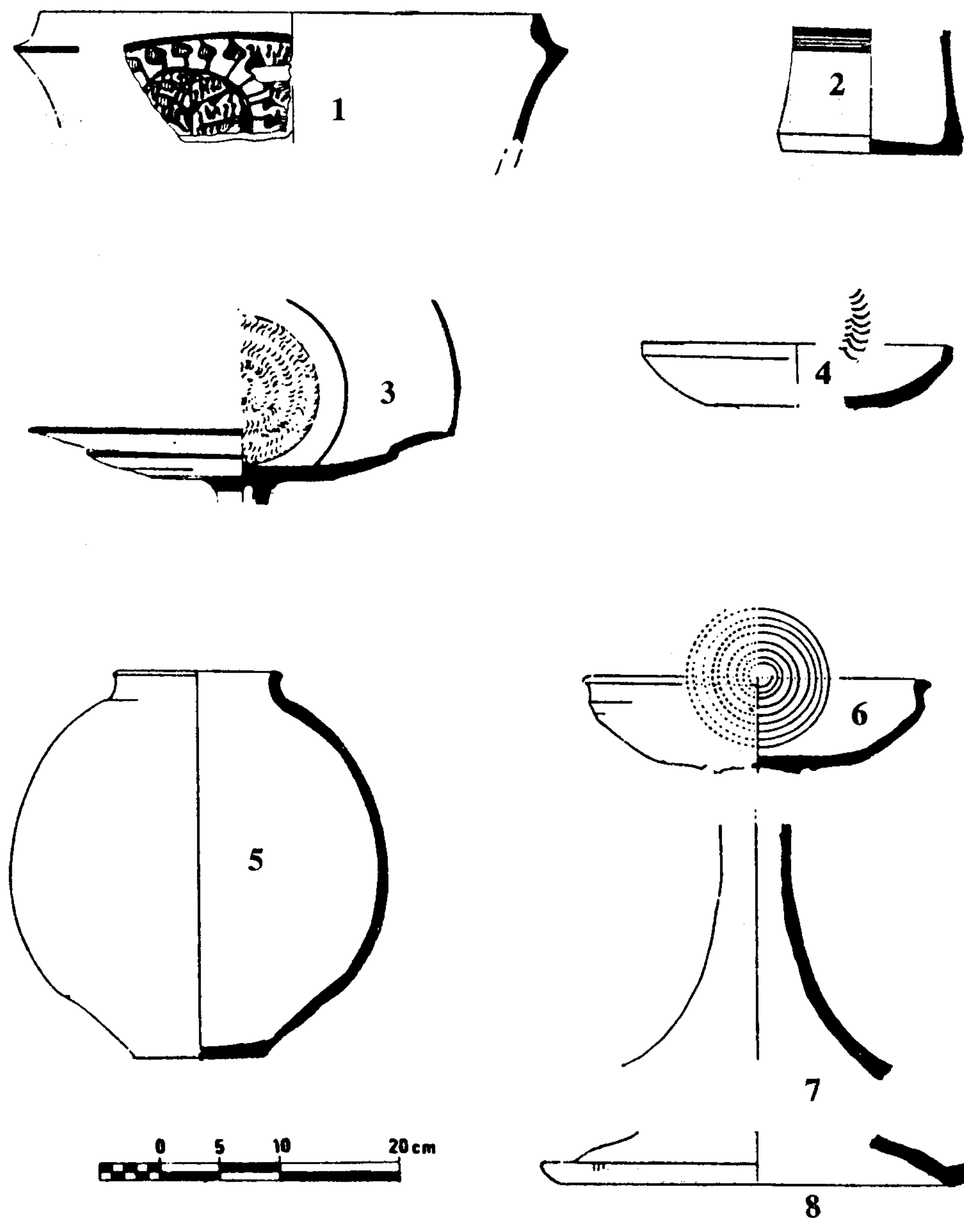


Fig. 8.12 Harappan pottery from Shortughai

(MC 1726); and 2139 BC (MC 2447). These show that the Harappans had colonized this area around the middle of the third millennium BC, i.e. within a short time of their attaining maturity.

The route to Shortughai is not an easy one. In any case, the Hindukush had to be crossed. By which route exactly it was done is difficult to answer, though there are a few passes at the head-waters of some rivers which could have provided the access. It is hoped that future fieldwork will bring to light more Harappan sites in between, which would help in determining the exact route(s). But what could have been the motivation for the Harappans to go to a far-off land and

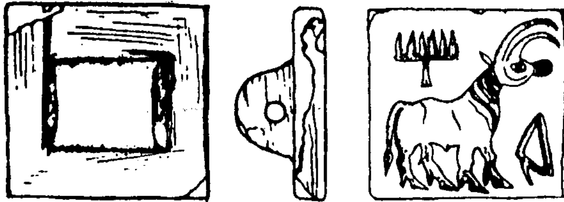


Fig. 8.13 Harappan seal from Shortughai

establish a colony exclusively of their own? (In the case of Mesopotamia, there may have been a small group of Harappan merchants living in a part of the city concerned, but that fades into insignificance before the Shortughai evidence.) Along the upper course of the Kokcha river, there are lapis lazuli deposits, and it seems that the Harappan settlement at Shortughai may have come up for exploiting this material for home consumption and maybe also for controlling its trade and export to other parts of Asia. Even during the course of the limited dig at the site not only have chunks and waste flakes of lapis lazuli been found but also micro drills which must have been used in manufacturing beads, etc. No doubt, further research will throw more convincing light on these issues.

For making a full assessment of the trade-contacts of the Harappan Civilization with other contemporary civilizations it would be equally necessary to examine what material from these civilizations found its way into the Harappan. We may open our discussion with the unmistakable Persian Gulf seal found at Lothal which, on account of its dockyard, may have actively participated in seaborne trade. Unfortunately, however, the seal is unstratified having been picked up on the surface. Made of light grey steatite with a creamy coating, it is circular in shape with incised design on one side and a boss on the other (pl. XXXIX B). The boss is perforated in one direction but divided by three lines in the other. Also there are on the boss four circlets, each with a central dot. It is, however, the incised design which is more interesting. It shows (Rao 1985: 313): 'a reptile or dragon having two heads and flanked by two jumping goats or gazelle-like animals with protruding eyes and looking over the shoulder. ... The goat-like animals on the seal ... are more like Sumerian goats. Some of the late circular seals of Failaka ... assigned by Dr. Bibby to the Sargonid period are identical in all details with the Lothal seal.'

Round seals having on the reverse a button-like boss perforated in one direction and bearing one or two incised lines in the other are quite distinct from the characteristic Harappan seals which are either square or rectangular. Their total number, however, is not more than half-a-dozen. Thus, one begins to wonder about the possible affiliation of such seals. At the same time it must be emphasized that all these round seals have typical Harappan motifs, including the bull, as well as inscriptions in the Harappan script in many cases, which make their indigenous association self-evident. Nevertheless, the shape might suggest an influence from the Persian Gulf where it is more at home. It may then be conjectured, not proved, that this kind of seal was specially manufactured for those dealing in Harappan-Mesopotamian trade *via* the Persian Gulf.

In contrast to these round seals there are the cylindrical ones. These, again, are rare at the Harappan sites. Of the half-a-dozen or so specimens known from Mohenjo-daro, Kalibangan (pl. XV A), etc. only one from Mohenjo-daro seems to have had a Harappan inscription, which too is not very distinct. At the same time, the motifs or scenes depicted on these seals are of Harappan affiliation and are certainly non-Mesopotamian. This last point is important since the cylinder seal, as a type, is non-Harappan but Mesopotamian. It would thus appear that the cylindrical seals found on the Indo-Pakistan subcontinent in the Harap-

pan context, may have been made under the orders of the Harappans concerned, since they depict Harappan (and not Mesopotamian) scenes, but their shape may have been inspired under Mesopotamian influence. Since cylinder seals are not found in the Persian Gulf but at inland sites in Iran and are at home in Mesopotamia, it is not unlikely that these may have been used by those carrying on overland trade between India and Mesopotamia, *via* northern Iran. However, more data are necessary to establish this premise.

In India, cylinder seals have also been found in a non-Harappan context. For example, there occurred a terracotta cylinder seal in the Jorwe Culture deposits at Daimabad and is thus ascribable to a much later period, viz. some time in the second half of the second millennium BC. It has an entirely non-Harappan and non-Mesopotamian motif. There is another terracotta seal, from Maski, depicting a man driving an elephant. The motif is clearly non-Mesopotamian and, above all, the seal was a surface find. There is, however, a seal which seems to bear a West Asian motif as well as an inscription which gives the name of the owner as Liburbeli who was 'the servant of the god Amurru or Adad' (Chakrabarti 1990: 50). The seal is ascribable to the First Dynasty of Babylon, say around 2000 BC. The circumstances of locating this seal, however, leave much to be desired. It lay mixed up with other ornaments in a collection in the Nagpur Museum. Its provenance is unknown. Further, since it is set in a gold handle, it may have been used as a pendant. It would, therefore, be unwise to set much store by it, except to note its existence.

In the context of West Asian influence one cannot but take cognizance of certain scenes/motifs depicted on otherwise typologically Harappan, viz. square-shaped, seals. A frequently referred to scene under this category is that of a man putting up a fight with two tigers, one on each side (pl. LV C). In the original Sumero-Elamite context, however, there are lions instead of tigers and the human figure is that of Gilgamesh. There is another motif which may have been West Asian in origin: it depicts a horned and tailed man struggling with a horned tiger. This figure has been thought to be that of Enkidu. The motif of conjoining a number of animals in a centrifugal manner may also have been under West Asian influence.

From Dabarkot comes a small stone head which is thought to be in line with the artistic creations of the Early Dynastic period: thin mouth, flat ears, pronounced nose, encrusted eyes, grooved eyebrows, etc. In any case, it is quite different from the Harappan tradition. Similarly, a terracotta figure from Lothal, with sharp pointed nose, sunken eyes, square-cut beard and bald head is reminiscent of West Asian tradition. Another terracotta figure of a kneeling man from the Zhob region is non-Harappan and may have been produced under Sumerian influence.

Just as cubical weights, typical of the Harappan Civilization, have been found in West Asia, some barrel-shaped weights of stone found at Harappa and Mohenjo-daro appear to be of Mesopotamian origin. It may, however, be noted that the more characteristic duck-shaped weights of West Asia are absent from Harappan sites.

We noted earlier that etched carnelian beads were exported from the Indo-Pakistan subcontinent to West Asia. Though not in such large numbers, yet some beads of probable West Asian origin found their way into the Indus region: for example, a long and thin, glazed lapis lazuli bead and glazed-*cum*-notched beads of paste, both of which were at home in Mesopotamia.

A fragment of a chlorite vase from an early level of Mohenjo-daro, bearing a mat or woven design, has rightly been compared to

specimens found at Kish and Susa where they are ascribable to a time in the second quarter of the third millennium BC. Tepe Yahya in southern Iran was also a centre for producing such vessels. Another chlorite bowl from Mohenjo-daro, hemispherical in shape and bearing a row of dot-in-circle below the rim, is comparable to similar specimens from Oman, which also seems to have been the place for its manufacture.

We may now turn our attention to pottery. In the Harappan levels at Balakot has been found a complete vessel whose 'high centre of gravity, carinated shoulder and black-painted geometric decoration', according to Dales (1979b : 266) 'are non-Harappan and point to southern Iran and the Persian Gulf, especially to Umm an-Nar in Abu Dhabi.'

Hollow pottery rings surmounted with a series of small lamps, the latter having holes to connect their bottom with the hollow ring underneath, have been found at Harappa, Mohenjo-daro and Kalibangan (pl. XII A). Known as *kernoi*, these objects have a wide distribution in both space and time in the West — from the Mediterranean sites to those in Mesopotamia and from the middle of the fourth millennium BC to the beginning of the Christian era. It is thus evident that these were imports from West Asia to the Indus valley (Pande 1971).

Amidst masses of pottery of indigenous type at Mohenjo-daro, Chanhu-daro, Lothal, Surkotada, etc. have been found a few specimens of a pottery which show a special kind of surface-treatment known as 'reserved slip'. The technique generally involved the application of two slips, or a slip and a glaze. Then with a comb-like tool the upper slip or glaze is removed before firing, exposing the underslip and producing wavy-line or even straight-line patterns. In case where there is just one slip, the combing exposes the body-surface. After this is done, the pot is fired. Pottery made in this technique has been found at a large number of sites like Ur, Nippur, Tell Asmar, Kish, Brak, etc. in West Asia, and the time-range is also a very broad one, viz. from the Jamdet Nasr Period to Sargonic or even later. However, in making any valid comparison between the Harappan and West Asian material a major handicap at present is that except in the case of a few examples from Surkotada, not much is known about the shapes involved in the Harappan Reserved Slip Ware. It is, therefore, difficult to say whether some actual pots were brought in by the sea from West Asia, or the Harappans produced their own wares copying a foreign technique. In this context, the prolific occurrence of this ware at sites in Kutch, which are close to the sea, may have some added relevance. At the same time, one must not forget some inland sites like Periano Ghundai and Moghul Ghundai, which are not very far from the Iranian sites like Bampur and Chah Husaini where pots made in this technique have been found. Some scholars also hold that there could have been an indigenous origin of this technique. Indeed more data are needed to come to any definite conclusion.

All told, one finds that the quantum of objects of Harappan origin found at Mesopotamian and Persian Gulf sites is much greater than that of West Asian objects found at Harappan sites. This seems to be the case, at least in the present state of our knowledge of the two areas. The implications of such a situation may require an explanation; and perhaps a variety of arguments can be produced.

We may now have a glance at the non-archaeological evidence, viz. that from contemporary inscriptions and texts. Unfortunately, in this case the Harappan side is annoyingly unhelpful since, in spite of the tall claims by many, the Harappan script still remains undeciphered. However, it is the

IMPORTS INTO MESOPOTAMIA FROM :

DILMUN	MAGAN	MELUHHA
Copper	Copper	Copper
Silver	—	—
Red gold	Gold dust	Gold dust
Carnelian	Carnelian	Carnelian/carnelian monkey
Lapis lazuli	—	Lapis lazuli
—	Diorite, red ochre	—
—	Stone vases	—
White corals	—	—
'Fish eyes' (pearls)	—	—
Ivory/ivory objects	Ivory	Ivory birds
Dates	—	Date palm
—	Onion	—
—	Goats	Red dog
Various woods	Wooden objects	Wooden furniture
—	*haluppu* wood	*Kusabku* (sea wood)
—	*mesu* wood	*mesu* wood
—	—	sagan wood
—	—	*sulum Meluhhi* (black wood)
—	—	*haja* bird (peacock)

(For a detailed account see Ratnagar 1981)

Mesopotamian texts and inscriptions — administrative, literary, commercial, historical, dedicatory, etc. — that throw valuable light on the trade and other relations that Mesopotamia had in antiquity with countries called Dilmun, Magan and Meluhha. While we shall discuss a little later the identification of these names with the present-day countries, let us first note down some of the more important material imported into Mesopotamia from these countries. (See above Table.)

For nearly half-a-century now there has been a debate about the identification of the aforementioned three regions, viz. Dilmun, Magan and Meluhha. Sargon of Akkad mentioned that in the harbour of his capital were berthed boats from Dilmun, Magan and Meluhha, which would indicate that these regions/countries were connected by sea. Sargon also claimed to have conquered these countries. Then there is a kind of sequence which suggests that from Mesopotamia these

countries were successively away in that order. During the reign of the Dynasty of Akkad and perhaps also during the time of Gudea, Meluhhan boats came direct to Mesopotamia. However, during the period of the Third Dynasty of Ur there is no direct reference to Meluhha, and Magan would seem to have been the trade-terminal. Still later, in the time of the Larsa Dynasty, Dilmun became the end-point of this trade. Finally, this external trade saw its end after Rim-Sin. The nearest sea-trade partners of Mesopotamia could have been the islands in and coastal areas of the Persian Gulf. Thus, there is valid reason to suppose that the islands of Failaka and Bahrain, with their Barbar Cultural remains more or less contemporary with Akkadian times, represent Dilmun of the Mesopotamian texts and inscriptions. To this general sort of reasoning may be added some more specific clues. A text from Ur gives the relationship between Ur and Dilmun weights. An analysis of the data brings out that the Dilmun weight *mana* was about 1370 g. That this was indeed so is shown by the weight of the largest specimen found in the excavations in Bahrain. Two gods of Dilmun, viz. Inzak and Meskilak have been referred to in Kassite period letters written in Dilmun and found in Nippur; and it is interesting to note that cuneiform inscriptions mentioning both Izak, the god, and Dilmun, the land, have been found at Failaka. There is still another piece of evidence which, though not as specific as the foregoing, can nevertheless be regarded as complementary. Dilmun, according to Late Assyrian texts, was situated in the midst of the 'Lower Sea'. This epithet (Lower Sea) was applicable to the Persian Gulf according to the Akkadian tradition, whereas the eastern Mediterranean Sea was known as the 'Upper Sea' in that tradition. Thus, there is a reasonable certainty in identifying the islands from Failaka to Bahrain as representing Dilmun of the Mesopotamian texts and inscriptions.

However, such a degree of certainty does not attach to the identification of Magan and still less to that of Meluhha. A statue-inscription of Naram Sin proclaims that he defeated Mani(um) of Magan. Inscriptions on some stone vases mention them to be booty from Magan. Amongst the imports from Magan to Mesopotamia, copper was a noteworthy item. Magan was said to be a land of mines. According to the textual references mentioned earlier, Magan was next to Dilmun, with reference to Mesopotamia. Referring to the present-day geography, next to Bahrain (already identified as Dilmun), at the mouth of the Persian Gulf, there is the peninsula of Oman. Since it is known to be a copper-producing area and its Umm an-Nar Culture dating back to the mid-third millennium BC was contemporary with cultures in Mesopotamia, it is not unlikely that Oman may have been one of the areas covered by the term Magan. It is also likely that areas near the Arabian Sea in southern Iran were also included within the ambit of Magan, though no seaports have yet been identified and excavated in that stretch. Further, if 'sound'-philology can be regarded as sound, then the regions going by the name of Makran (> Makkan > Magan) in southeastern Iran and southern Baluchistan (Pakistan) may also be thought to have constituted a part of Magan.

Now to Meluhha. Referring to the extent of Sargon's empire, a text mentions that Meluhha was '120 *beru* from the mouths of the Euphrates' (as per the translation of Allbright). Since the direction of the distance is not mentioned, it becomes difficult to move the pointer on the map. At the same time, since Meluhha was further away from Magan, as discussed earlier, and since there existed east of Makran (Magan) a civilization on the Indo-Pakistan subcontinent which was contemporary with a corresponding Mesopotamian civilization, there would appear to be *prima facie* a case for identifying the land of the Harappan Civilization with that of Meluhha.

However, one cannot easily overlook two other textual references to Meluhha. In one case, the inhabitants of Meluhha have been called 'the people of the black foreign land'. In another instance also, viz. in 'Enki and the World Order', Meluhha has been called a 'black land'. Why such an epithet is anybody's guess, unless the black African world was intended? Be that as it may, some scholars have tried to use the name 'Me-lah-ha', given to a clan of sea-sailors in Sindh, as evidence of identifying the Sindh region with Meluhha. This is rather far-fetched, since the word Me-lah-ha appears to be same as *mallāh* which connotes boat-pliers not only in Sindh but as far north and east as U.P., Bihar and Bengal. Equally far-fetched is the equation between Meluhha and *Mlechchha*, a word used in Sanskrit texts of later times to denote a category of non-Aryans. The authors of this latter thesis appear to have been motivated by their belief that the Harappan Civilization was necessarily a Dravidian one. Indeed, there is hardly any evidence to confirm that the Indo-Aryans used the term *Mlechchha* specifically for the Dravidians.

Let us have a look at the issue from another angle, viz. from that of the imports to Mesopotamia from Dilmun, Magan and Meluhha. It would at once be seen (cf. the Table on p. 195) that while the islands of Failaka and Bahrain, identified as parts of Dilmun, do produce dates and pearls, they have no ivory or carnelian to export. Likewise, though the Mesopotamian texts refer to the import of a variety of woods from Magan, Oman, identified as a part of Magan, has no such woods to offer. The stone vases bearing Naram Sin's inscriptions have been called booty from Magan. These are of alabaster but alabaster is not indigenous to Oman. The only way to explain all these *prima facie* anomalies is to accept the fact that the commodities brought by ships from a given port/region need not necessarily have been the products of that very region, as is true even today. The seafarers of Dilmun could have, as indeed they seem to have, transhipped material from the region of the Harappan Civilization to Mesopotamia. What better evidence can there be in this regard than the discovery of a Persian Gulf seal at the port-town of Lothal on the one hand and of similar seals at Mesopotamian sites on the other? This, of course, does not preclude the Harappan merchants carrying their own shiploads to Mesopotamia, *via* Dilmun as, again, indicated by the presence of Harappan seals in these two regions.

In discussing the identification of the Harappan zone with Meluhha, an interesting evidence needs to be specially referred to. In the list of imports to Mesopotamia given in the Table (p. 195), there is the mention of the *haja* bird as coming from Meluhha. If the identification of the *haja* with the peacock is correct, then the issue seems to get clinched, since as far as we know the Harappan zone alone could have exported the peacock. In this context, one cannot help recalling that one of the *Jātaka* stories, assignable to the early historical times, states that Indian merchants sailing to Baveru (ancient Indian name for Babylonia) carried with them the peacock. To reinforce the issue from the Mesopotamian end, one may also draw attention to what Enki says of Meluhha, 'May your bird be the *haja* bird, may its call be heard in the royal palace' (Falkenstein 1964).

We may now turn our attention to the routes taken, and begin with seaborne trade. Let our starting point be Lothal where a dockyard and a warehouse of the Harappan times have been duly identified. In the first place, it has to be admitted that no high-sea voyages were involved since it is doubtful if in the third millennium BC there existed enough knowledge of high-sea problems and the necessary skill to overcome the same. Thus, the movements of boats/small ships had to be by and large along the coast. But let

it be noted that even coastal movements were not practicable all through the year. The peak periods of southwestern and northeastern monsoons, say between June and August in the former case and between December and February in the latter, had to be avoided. However, in the areas along the Baluchi and Iranian Makrans, the monsoon is not that much of a hindrance, while within the Persian Gulf shipping would have been possible all though the year. Thus, in so far as the Harappan ships were concerned, the sailors perhaps avoided the aforesaid months. The best months for the Indian ships to sail westwards would have been either before the beginning of the northeastern monsoon or soon after it was over. This would have helped the utilization of the winds moving towards the west. Likewise, the return journey from the Gulf would have been best performed before the commencement of the southwestern monsoon or soon after its ferocity was over. By doing so the winds blowing eastwards would have been utilized.

No actual remains of a Harappan seafaring vessel have been found. One has thus to depend on representations found on seals or on clay models thereof. Thus, a seal from Mohenjo-daro depicts a boat with a high prow and stern, a central cabin, and possible oars (not very distinct; pl. LII A). A graffito on a potsherd, again from Mohenjo-daro, depicts a boat with upturned prow and stern, an oar and probably a sail. A clay model of a boat from Lothal represents the vessel with a keel, pointed prow, and blunt stern. There are blind holes indicating presumably the positions where the mast and oars would be located. Rao (1979: 225) adds: 'The multi-oared boats painted on the potsherds from Lothal are reminiscent of the Egyptian galleys'. It would have been noticed that in certain cases both the sail and oars were used. While the former must have been employed in utilizing the wind-force, the latter would have been used either when winds were still or when the boat had to be manoeuvred into a dock or even in an improvised berthing place. While boats used specially in rivers for internal trade may have been made of reed, the seagoing boats were presumably made of timber such as teak which was easily available on the subcontinent. In the absence of necessary data, it is difficult to visualize the size of the boats.

As mentioned earlier, a more convenient route adopted by the Harappan ships for going to Mesopotamia must have been a coastal one. With Lothal as a point of exit, we may visualize that the boats ferried around the Kathiawad coast, where there are good creeks for berthing and a few Harappan or contemporary sites, like Kanjetar, Somnath, Kindar Kheda, etc., have been identified. The boats would then have reached Bet Dwarka at the north-western tip of the peninsula. Over here late Harappan remains have been brought to light, which included, besides pottery, etc., a seal of chank-shell depicting the well known three-headed-animal motif (Rao 1990). At this point, more boats originating from the Kutch area must have joined. Though today the inland branch of the sea is largely silted up, there is good reason to suppose that in antiquity the Gulf of Kutch was duly functioning. Westward from the Gulf of Kutch and up to the Indus delta not many ports of call have been identified, but a little to the west of the delta lies the site of Allahdino, which, though away from the actual seacoast, must have gained its importance because of the trading boats calling at the nearby shore. Further west, on the Sonmiani Bay was Balakot which by itself must have been an important trading centre because of its large-scale production of shell objects. From there onwards were respectively the Harappan sites of Sotka Koh at the mouth of the Shadi Kaur and Sutkagen Dor at the mouth of the Dasht river, which must have participated in this trade transmission.

Unfortunately, not much is known about ancient ports or secure berthing places along the Iranian coast. But soon after entering the Persian Gulf around the Oman peninsula a host of third millennium BC sites and ports were ready to welcome the incoming boats. The islands of Umm an-Nar, Bahrain and Failaka have yielded substantial evidence regarding their participation in this Indo-Mesopotamia trade. Finally, Sargon of Akkad hailed these boats berthed in the quay of his capital.

For overland transport bullock-carts and pack animals seem to have been used. From clay models of the carts four to five varieties may be discerned. Some of these may have been used exclusively either for passenger or goods transport, while some others may have been used for both. These would have been useful on the plains, where pack animals could also have been used. But when it came to crossing the hilly terrains on the west of the Indus plains, for getting into Iran, Afghanistan or Central Asia, bullock-carts, for obvious reasons, were not suitable. In such cases, a caravan of pack animals was the only answer. Though evidence in the form of actual skeletal remains is not abundant there is reason to suppose that the ass (*Equus asinus* Linn.) and one-humped camel (*Camelus dromedarius* Linn.) were used for the purpose. This is suggested by the discovery of bones of the ass from Ropar, Harappa and Surkotada and those of the camel from Kalibangan, Mohenjo-daro and Harappa. Within the Harappan domain a lot of traffic must have also been shared by the rivers, particularly in Panjab, a land of five (*panj*) rivers. A reference has already been made above to the kinds of boats known to the Harappans.

For any trade-transaction, which is not just a barter, it is necessary to have systems of weighing and measuring so that commodities sold or purchased may be duly weighed and measured, as the case may be. It would also be expedient, if not absolutely necessary, to have a method of recording the same, which, as a consequence, would involve a system of writing. While, because of its highly debated nature, the Harappan script will be dealt with separately, it is proposed to discuss here the systems of weights and measures.

The Harappan weights were cubical in shape, the material being usually chert, though sometimes jasper and agate were also used (pl. L B). These weights were classified by Hemmy (in Mackay 1938:602, Table III) who put them in the following range and ratio.

Mean weight (in grammes)	**Ratio**
0.871	1
1.770	2
2.285	8/3
3.434	4
6.829	8
13.731	16
27.405	32
54.359	64
136.02	160
174.50	200
271.33	320
546.70	640
1417.5	1600
2710.4	3200
5556.0	6400
6903.0	8000
10865.0	12800

The range of variation in the actual specimens was very minor. For example, it was noted to be around 0.026 g in the case of

weights of 0.871 g and 0.206 g in the case of weights of 13.731 g. This may perhaps be due to wear and tear and other factors.

Rao (1985:562) records another set of weights, in which the smallest unit weighs 1.2184 g, while the others weigh 4.3370 g, 8.5753 g, 18.1650 g and 33.3052 g respectively.

According to Hemmy's Table, the weight-system is partly binary and partly decimal. Mainkar (1984), on a re-examination of the entire series, including that of Rao just referred to, has proposed a somewhat different conceptual basis. He puts the weights in a metric mould dividing or multiplying each decimal unit by two. Thus, taking 0.1, 1, 10, 100 and 1000 as representatives of the decimal system, he places the weights in the following ratios: 0.05 and 0.2 respectively as half and double of 0.1, or 50 and 200 as half and double of 100 and so on. In this manner, he produces two series out of the entire Harappan weights, both falling in the metric system. There are, however, a few left-overs in Mainkar's scheme, besides an amalgamation of the two different sets mentioned above. Thus, while the conceptual background of these weights may still require a further in-depth study, it is more than obvious that the system of weights followed by the Harappans was not only a well-integrated one, but also meticulously followed throughout the vast length and breadth of the Harappan Civilization. Indeed, even time could not tell upon it, since for nearly three-quarters of a millennium the system remained unchanged. In this context it may be mentioned that whereas most of the weights were found individually, at Chanhu-daro 22 specimens were found in a stone-cutter's house (Mackay 1943:243). This latter evidence would suggest that the weights were manufactured at a few centres under controlled conditions and supervision and were distributed therefrom. This ensured their uniformity and accuracy.

For the actual weighing of commodities scales with a beam and two pans appear to have been used, as suggested by the discovery of clay models of pans. Each pan has three holes through which strings must have passed, connecting the pans with the terminals of the beam. Small-sized scales may have been used for weighing precious metals like gold and silver and even precious stones, while for heavier items larger scales were evidently used.

We have, however, no idea of how liquids were measured. Perhaps a careful study of the capacity of the pots might yield some useful results. Nor do we have any idea about if and how Harappans subdivided their time — nights and days into a likeness of hours, minutes, etc.

In regard to linear measurement, we do have some evidence. Altogether four scales, one each from Mohenjo-daro, Harappa, Kalibangan and Lothal, have been found. The material used is shell, bronze, ivory and even clay. Unfortunately, all the specimens are incomplete (broken) and hence a full comprehension of the length-measure is not possible. Nevertheless, certain postulates can be made.

Made of shell, the broken Mohenjo-daro scale has nine graduations. On one of these is a hollow circle, while on the fifth graduation from it, there is a large solid dot. The distance between two adjacent graduation-lines is 6.7056 mm. Thus, the distance between the hollow circle and the solid dot is 33.528 mm. The scale is broken. However, it may not be unreasonable to presume that, had the scale been complete, at the tenth graduation from the one having the hollow circle there would have been another hollow circle. Thus, a larger unit, from one hollow circle to another, would have measured 67.056 mm. If the decimal system was in operation, as seems to have been the case, then the next higher unit would have measured 670.56 mm, something like two-thirds of the present-day metre.

The bronze rod from Harappa, again incomplete, has four graduation-lines, the distance between two lines being 9.34 mm. The details of the Kalibangan scale yet remain to be worked out.

The Lothal scale, made of ivory, is again incomplete (pl. L A). On it twentyseven graduation-lines can be observed, covering a length of 46 mm. This would give to each small unit the value of 1.704 mm. Of these twentyseven lines, the sixth and twentyfirst are longer than the rest, suggesting that distance between these elongated lines may have been a unit that mattered. Its length would be 25.56 mm.

Mainkar (1984) has tried to work out a correlation between the Mohenjo-daro, Lothal and Harappa scales. According to him ten times (if the system was a decimal one) of the Harappan small unit, i.e. 9.34 mm x 10 = 93.4 mm would 'be a combination of the major graduations of the Mohenjo-daro and Lothal scales, namely, 67.056 mm plus 25.56 mm = 92.616 mm.' He then adds (1984: 146): 'The Mohenjo-daro scale and Lothal scale are apparently different but on analysis they prove to be practically equal. It will be noticed that 20 divisions of the Lothal scale are equal to 34 mm, which is almost equal to the distance between the hollow circle and the circular dot on the Mohenjo-daro scale, namely 33.53 mm. This fact establishes that the two scales are related, but their division into smaller graduations is different. The smaller graduations of the Mohenjo-daro scale are at every 6.706 mm, while those of the Lothal scale are at 1.7 mm, the ratio being that 4 Lothal graduations are equal to one graduation of the Mohenjo-daro scale. The smallness of the Lothal scale-graduation indicates that it was used for finer measurements.' While Mainkar's reconciliation is no doubt most welcome, one really wonders as to what exactly was the conceptual background of these different graduations. Anyway, the Harappans did have a system of length-measurement which they used in the preparation of the bricks as well as the laying out of such public buildings as the Great Bath at Mohenjo-daro or the Great Granary at Harappa.

In this trade, whether internal or external, at least half-a-dozen participants seem to have been involved, viz. the procurers of the raw material, the artisans who manufactured the objects, the merchants who bought these goods from the artisans and traded them at different places, the local retailers and the transporters. In the case of the external trade perhaps a few more hands were needed, for example, middle men who carried the commodities to far-off lands and the agency engaged in the final sale at the other end. It seems that in certain foreign lands, for example in Bahrain and Mesopotamia, Indian agents had settled down to transact business on a long term basis. In this context one may well recall the presence of ships from Meluhha (identified as the land of the Harappans), along with those from Dilmun and Magan, berthed in the waters of Akkad, as mentioned by king Sargon (2334-2279 BC) in his inscription. In fact, as already stated, the Ur III Dynasty texts even mention the existence of a Meluhhan village (*e-duru me-luh-ha*), indicating that Harappan merchants had settled down within the Mesopotamian territory to carry on their business.

Another very important question to which one would like to find an answer is: Did the State participate in the organization of the trade? And if it did, to what extent? Unfortunately, we do not have much worthwhile evidence in this regard. All hopes are rightly pinned on the decipherment of the script which holds the key to our interpreting the sealings affixed on the packages containing the traded commodities.

Before closing this discussion on Harappan trade, it seems necessary to offer some

comments on a recently advanced view by some scholars. It has been argued that the occurrence of Harappan objects in Western and Central Asia may not be due to trade but to some other reasons, such as the presentation of the objects by one set of elites to their counterparts, or the objects having been obtained as war-booty by the conquerers. Conceding that such things did happen in the past, in our case the rather ordinary (and not exotic) nature of the objects involved and their provenance do not justify such an assumption. To recall just a few examples. At Tell Abraq there occurred two Harappan weights 'in association with a wealth of Umm an-Nar painted pottery in the late Umm an-Nar fireplace' (Potts 1993: 327). Again, in the various deposits at Hili, Ras al-Junayz, Umm an-Nar, etc. has been found the usual Harappan pottery, having nothing extraordinary about it (Edens 1993: 339-42). Does all this echo elite-presents or war-booty?

IX

SCRIPT AND LANGUAGE

Amongst the various innovations made by man during his march from savagery to civilization that of writing was admittedly an important one, since it helped in communicating ideas and messages amongst people located at long distances from one another. It also helped in maintaining records of a variety of transactions, and of events and administrative matters. Indeed, it would be difficult to visualize a civilization worth its name without some kind of writing.

Evidence from the ancient world as well as from recent tribal sources serves to indicate that scripts are broadly divisible into the following four principal categories: (i) pictorial, in which the message is sought to be communicated primarily by means of pictures; (ii) logographic, wherein each sign represents a word of the language concerned; (iii) syllabic, in which the signs acquire phonetic values (as distinct from their representing mere ideas or words), the phonetic value of a given sign comprising one or more consonants with accompanying vowels; and (iv) alphabetic, wherein each sign stands for a single sound. There could, however, be intermediary stages as well, between any two of the above categories, Thus, for example, there could be a logo-syllabic script in which some of the signs would stand for whole words while some others would have only syllabic values. There is no limit to the number of pictures used in a pictographic writing, since all will depend on what is intended to be communicated. In a logographic script too the number of signs has got to be very large since each word is represented by a separate sign; for example, the Chinese, a logographic script, has something like 50,000 signs. In a syllabic script, wherein the signs acquire phonetic value, the number of signs drops considerably: at the syllabic stage the ancient Sumerian and Egyptian scripts had about 100-150 signs. The alphabetic script has a still smaller number, for example the Devanāgarī script (of India) has 48 signs, while the Roman script has only 26.

There is no agreement amongst scholars on the actual number of signs used in the Harappan script, since some of the signs, viewed from a purely morphological angle, do appear to be a combination of two or even more signs used independently in the same script. But this morphological combination need not necessarily mean that the combined sign could not have an independent phonetic value of its own. For example, the *kha* sign in the Devanāgari script, though written as a

combination of *ra* and *va*, has its separate phonetic value, having nothing to do with either of its morphological constituents. Thus, until the Harappan script is actually deciphered, the debate about the total number of signs in it will continue. Anyway, to give an approximate idea of the number of signs involved, let it be stated that Langdon (1931) put them at 288, Meriggi (1934) at 270, Koskenniemi *et al.* (1973) at 396 and Mahadevan (1977) at 417. Chances, therefore, are that the Harappan script is neither logographic nor alphabetic. For all one can guess, it may have been at some transitional stage between the logographic and the syllabic, perhaps nearer the latter.

The Harappan script occurs on a variety of objects — on seals, sealings, copper tablets, other metallic objects like axes, pottery and so on. The script is by and large monumental, that is to say well formed and characteristically standardized. Throughout the long temporal span of the maturity of the civilization the form and style were generally maintained. Likewise, the tremendous spatial distances between one area and another also do not seem to have had any noteworthy effect on the monumental character. Of course, depending on the nature of the writing medium used, the signs did show some minor aberrations or slight sub-standardization: for example, between the signs depicted on the meticulously carved out seals on the one hand and the graffiti on the pottery on the other. But these did in no way affect the basic character of the script, the style of which appears to have been guarded all through. Casualness or slight cursiveness is to be seen only in some instances, mostly in late Harappan times and that too in the graffiti on pottery.

With each new excavation adding more and more of inscribed material, it is difficult to keep count of the total number of inscriptions discovered so far. However, a rough estimate may put them around 3,500. But these are by and large very short. While an average inscription may be taken to have comprised about four-five signs, there are instances in which only one sign occurs. The number of inscriptions having more than say ten signs is very limited and the maximum number of signs used in any inscription did not exceed twentysix. For a long time uncertainty prevailed about the direction of writing in the Harappan script. While according to some it was from the right to the left, there were others who thought it was the other way round. This latter view was held mostly by those who wanted to read Sanskrit in these inscriptions, perhaps mentally guided by the fact that Sanskrit, in Devanāgarī script, is written from the left to the right. A final seal on this controversy seems to have been put in 1961 when this writer presented a paper at the International Conference on Asian Archaeology, held in Delhi. The paper was subsequently published in *Antiquity* (1966). While most of the professional colleagues must have read this paper, the line of argument presented in it is briefly restated here for the general reader, particularly because of the methology used. How a simple observation can lead to far-reaching results!

During the course of excavations at Kalibangan, the well-known Harappan site in Rajasthan, two inscribed potsherds were found, showing overlaps between adjacent signs. Of these, one is illustrated here (pl. LI). As may be observed, the right portion of the sherd is broken and thus it is not known if there was any sign further on the right. The available extreme right sign resembles a fish. It usually has two fin-like oblique strokes emanating from the upper part of the body, one going downwards to the left and the other likewise to the right. In this case the right stroke is missing since the relevant part of the potsherd is broken. However, a close examination of the left stroke at the point of its junction with the arc-like part of the body shows that the oblique stroke overrides the arc, though

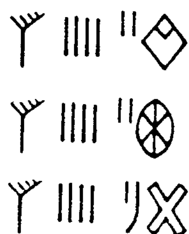


Fig. 9.1 'Blocks' in Harappan inscriptions

admittedly the overlap is rather short and not so pronounced. However, as one moves the eye leftwards one finds that the lower part of the oblique stroke is overridden by the four downward strokes of the sign resembling the scriptal form of the English letter I. Moving further left, it is observed that the lower end of this I-like sign is overridden by the lower end of the right arm of the next sign which resembles an acute angle with the top up. Still further on the left, the lower end of the left arm of this angle-like sign is found overridden by the right arm of the V-like sign. This last-named sign seems to mark the end of the inscription, since there is no other sign further on the left. However, it is worthwhile noting that out of the four strokes which emantate in groups of two from each of the upper ends of the V, three are of almost equal size, whereas the lower one on the left side is unusually long and thins out towards the lower end. Such a 'flourish' is usually observed in the terminal part of the last letter, for example while one puts down one's signatures. From the forego-ing overlaps it is clear that in each case the sign on the right is overridden by its neigh-bour on the left. In other words, in each case the sign on the right was inscribed earlier than the one on the left. Signs inscribed on the other potsherd (not illustrated here but pub-lished in the 1966 paper) also show the same kind of overriding, though their number is less. Anyway, this feature clearly establishes that the direction of writing in the Harappan script was from the right to the left. The 1966-paper also includes evidence from a seal from Harappa in which the inscription, running along its three edges, also shows that it began from the right and then moved on to the left, going down successively along the other two edges.

While right-to-left was clearly the rule of writing in the Harappan script, there seem to occur some aberrations, which may justifi-ably be taken to substantiate the maxim that 'exceptions prove the rule'. It has, however, to be noted that when an inscription ran into a second line, the signs of the second line were usually inscribed in a boustrophedon manner, i.e. from the left to the right, which seems to have been the outcome of a desire to place the next sign in continuation of the last sign at the left end of the upper line.

As already mentioned, the inscriptions are very short. Yet in many cases it is possible to make out certain separable components or 'blocks'. Thus, for example, two short vertical strokes or a slightly long stroke followed by a short one seem to separate the initial block from the following part of the inscription (figs. 9.1 and 9.2). It may also be observed that whereas in fig. 9.1 the initial sign, which is followed by two short or one long and the other short strokes, varies, in the case of fig. 9.2 the initial sign and a long and a short stroke are constant but the remaining part of

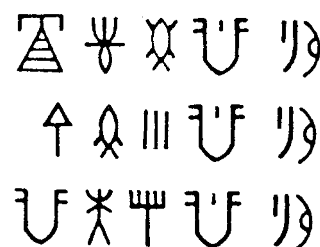


Fig. 9.2 'Blocks' in Harappan inscriptions

the inscription varies. The significance of these blocks, however, yet remains to be correctly determined.

In the context of the likely contents of the Harappan inscriptions, a relevant question arises in respect of the use of the seals, since

they constitute the bulk of the inscribed material. Most of the seals have a perforated knob on the reverse (pl. LIIIA). Evidently, a cord was passed through the perforation for the seal's suspension. This has led some scholars to believe that the seals were worn as amulets and some have even opined that these were marriage tokens given to and worn by newly wed girls (Fairservis 1992: 5, 138). There are, of course, even more fantastic hypotheses, such as the seals record rules of grammar or these were 'printer's blocks'. However, a dispassionate examination of the data leads one to the following major observations.

The inscriptions as well as the figures on the seals are sunken, i.e. carved in. These are in the negative and thus it is only their impressions, viz. those on the sealings, that represent the positive. In such a case it may not be proper to hold that the seals, being the negatives, were really used as amulets, whether dealing with charms or used as marriage-tokens. One expects the amulets to be in the positive. Anyway, the sealings themselves show a great variety, of which at least three may be noted. The most prolific variety of sealings consists of clay pieces with the impression of one or even more seals on one side and of reeds and even cord with its knot on the other (pl. LIIIB). Such sealings have been found at almost all major Harappan sites. However, the Lothal example is *par excellence.* Here, from the ruins of the warehouse, as many as 65 clay sealings were recovered. Most of these bore impressions of the cloth to which they were affixed, as well as of reeds and cords. It is thus evident that the seals (i.e. the negatives) were used for stamping clay which sealed the packages containing certain commodities.

There are, however, other kinds of sealings too, which call for attention. For example, in the southern part of the Citadel at Kalibangan, where there are ritual platforms, as many as seven sealings, bearing the same inscription, were found (pl. LIVA). These are long strips of baked clay and do not have any impression of reed, cloth or thread on the reverse. The total absence of such impressions militates against their having been used for sealing commodities. Thus, it is not unlikely that with the repetitive inscription and the baked nature of the clay, these sealings may have had some votive character (Lal 1975). Then there are plano-convex pieces of unbaked clay, bearing the impression of a seal on the plane side, but no impression of any kind on the reverse (pl. LIVB, left). These may have been tokens for identification, carried by the bearer concerned.

It must, however, be added that the foregoing instances do not exhaust the entire use to which the seals might have been put. For example seals, such as the ones depicting the '*Paśupati*' figure (pl. XIVA) or a deity within U-shaped pipal branches along with a goat and a kneeling person in the upper register and a row of seven figures in the lower (pl. XIVC), may not have been used for the more mundane function of sealing commodities. These are matters which require further research.

Before we come to the most intriguing aspect of the Harappan script, viz. its decipherment, there are two more issues which may perhaps be addressed. The first one is: Did the Harappan script spring up all of a sudden or did it have earlier moorings, like the Civilization itself? This, of course, is not to say that if the Harappan Civilization emerged from a substratum, the script also must have necessarily followed suit. A script could come up on its own as and when the necessity for it was felt.

As a response to the foregoing question, it must be stated that the basic forms of many of the signs of the Mature Harappan

script are to be found in cultural strata that preceded the Mature Stage. Some of the sites which have yielded such data are: Amri, Balakot, Jalilpur, Kalibangan, Kile Ghul Mohammad, Mehrgarh, Periano Ghundai, Sarai Khola, Rehman Dheri, etc. (Lal 1992). These forms occur mostly as graffiti on pottery, but are sometimes painted as well. The excavator of Rehman Dheri has also referred to a case in which, according to him, as many as five signs are involved. Likewise, the excavator of Mehrgarh also refers to signs occurring in different combinations. At the former site there also occurred an ivory seal depicting on one side two mountain goats and three signs, resembling respectively an arrow and the English letters T and I and on the other two scorpions, a frog and, again, the T sign (fig. 4.9). On the basis of radiocarbon dating, this seal is ascribable to the last quarter of the fourth millennium BC to which period also go back some of the Mehrgarh signs.

The position, thus, is that a good many of the signs (about 40) appearing in pre-Mature Harappan context do find a place in the Harappan script. But a more important question that yet remains to be satisfactorily answered is: Did the signs concerned have a phonetic value in the pre-Mature context, as they seem to have had in the Mature? Admittedly, much more evidence and analysis are necesary to settle the issue either way. A suggestion made by S.R. Rao (1982) that the Harappan script may have been borrowed from the South Semitic script (and from a few others) is untenable. Likewise, the case for a proto-Elamite and proto-Sumerian borrowing, advanced by Walter A. Fairservis (1989: 213-14), does not seem to hold good.

The second question is: Did the Harappan script die out with that Civilization, or did it continue? And if it did continue, for how long; and, further, did it contribute to the make-up of the early historical (fourth-third century BC) script of India, called the Brāhmī? The question of the survival of the Harappan signs was examined in some detail by the present writer way back in 1960. It was noted that many of the Harappan signs continued in the Chalcolithic cultures of Central India, Gujarat and northern Deccan, which are broadly ascribable to the second millennium BC. The signs passed on to the Megalithic cultures of South India, crossing even the 1000-BC line. In fact, on a Black-and-red Ware pot from Sanur, assignable to the first half of the first millennium BC, as many as three Indus signs occur in a row, signifying that these were not just hangover symbols but constituted as valid an inscription as did the Harappan proper (Lal 1960). This pretty late survival of the Harappan script would tempt anyone to stretch the time by a few centuries and forge a link between the Sanur inscription and the Brāhmī script. But the case does not stand a closer scrutiny, at least in the present state of the data. In northern India, where the Brāhmī seems to have made its earliest appearance around the fourth-third century BC, no inscriptions, nor even graffiti, have been reported from the preceding Painted Grey Ware levels which are assignable to a period from the end of the second millennium BC to about the end of the first quarter of the first millennium BC.

Now to the decipherment of the Indus script. It was but natural for scholars to have made chivalrous attempts from time to time to crack the code, since there was (and still is) an urge to elicit the valuable information that these inscriptions are concealing from us. Thus, soon after the discovery of the Harappan Civilization in ealry 1920s attempts began to be made to unfold the mystery of the script. Amongst the more noteworthy early decipherers mention may be made of: L.A. Waddel (1925), Prannath (1931-32), G.R. Hunter (1934), P. Meriggi (1934), A.S.C.

Ross (1938), B. Hrozny (1941-42), B.M. Barua (1946), Henry Heras (1953) and Shankarananda (1955). Perhaps because failure followed failure, there was a lull for a while. However, after about a decade, a new set of decipherers began to come up and in 1965 a Russian team comprising G.V. Alekseev, Ju. V. Knorozov, A.M. Kondratov and B.Ja. Volcok (later joined by N.V. Gurov) fired the first salvo, soon (1969) to be followed by a Finnish team consisting of Asko Parpola, S. Koskenniemi, S. Parpola and P. Alto. The heat thus generated brought many a combatant to the field, amongst whom particular mention may be made of the following: Walter A. Fairservis, J.V. Kennier-Wilson, I. Mahadevan, M.V.N. Krishna Rao, S.R. Rao, Egbert Richter-Ushanas and B.V. Subbarayappa. Success or no success, the renewed efforts have done at least one good thing, viz. the publication of two sumptuous concordances: one by the Finns and the other by I. Mahadevan (see Bibliography at the end). In this context, mention must also be made of a fully illustrated monograph edited by J.P. Joshi and Asko Parpola (1987), covering the collection of the Harappan seals in India.

As already mentioned, no one has succeeded so far in deciphering the script. Nevertheless, it may be of some interest to the general reader to know the trends. According to some scholars, the language involved in these inscriptions was a kind of proto-Dravidian, while others think that it was proto-Sanskrit. Within the scope of this book, it is just not possible to present even a brief review of the theses put forward by the aforementioned scholars. However, it is proposed to give to the reader an idea of the kind of readings that are being put forward; and I choose only one seal to illustrate my point, viz. the one which depicts a seated figure in yogic posture in the centre, with a few animals around and an inscription at the top (pl. XIVA).

Regarding this seal, Richter-Ushanas (1992a: 25) has the following to say:

father (of the eye)/*ari* + *n*

the earth, *Aditi*/*ad*

withdrawal of the limbs: tortoise/*sva*

great god/*pasyayā* + *e* (the second stroke)

seer/*ka*

lord of men/*ka-vi*

> The father of the earth who spreads her legs apart from him, the tortoise (*kaśyapa*) the great god, the seer, is the Lord of beings. (Cf. *Ṛigveda* X.82.1)
>
> *Arinad svapasyayā eka kavis*. Who lets flow (it, the great) by his wonderful power, is the only seer (III.3.11).'

From the foregoing it is clear that Richter-Ushanas holds that the language of the Harappan seals was Sanskrit.

In marked contrast to the foregoing is the interpretation of Walter A. Fairservis (1992). In the 'Introduction' to the chapter on 'The Harappan Texts', he states (p. 117): 'The language of the Harappans was one of the early Dravidian group. Its closest affinity is to Tulu-Kannada in lexemic morphology and in lexemes proper.' With this as his starting point, he deciphers the inscription on the 'proto-Śiva' seal as follows (see here top of p. 209).

On p. 200, he elaborates: 'The inscription refers to a paramount chief named Aṇ-il. The chief is the primary chief of four sodalities, each represented by one of the animals [surrounding him in the picture].'

-aṇ	*pir*	*aṇ-il*	*koramāṭa*	*kuṭu*	*āḷ-ā*
one	chief	the high	assembled clans	joins	He'

(*piraṇ* = ruler)
Aṇ-il the Ruler, He (who) Gathers the Assembled Clans'

It would thus be seen that the decipherments of Richter-Ushanas and Fairservis are in sharp contrast to each other. However, lest it should be mistaken that only Sanskritists and Dravidianists do not see eye to eye, I give below two more examples, one each of a Sanskritist and a Dravidianist, which will demonstrate that even two Sanskritists or two Dravinianists, within their own group, do not agree with each other.

To take up another Sanskrit protagonist, M.V.N. Krishna Rao (1982). He connects the five signs (leaving aside the human ones) of the inscription with the four animals and one human figure depicted on the same seal. Then comes his basic and, therefore, crucial argument, viz.: 'It is known to us all that the Vedas are our earliest literature. Therefore, there is no harm in tentatively speculating that the language of the Indus people might be nearer to the Vedic language or one of its early forms' (*ibid.*: 11-12). Thus, assuming that the language of the Harappans was a form of Sanskrit and using the principle of acrophony, he assigns to the five signs phonetic values equivalent to the first sounds of the Sanskrit names of the animals. Thus, he reads the first sign, starting from the right, as *ma*, derived from *mahiṣa* (buffalo), the second sign as *kha* derived from *khadgi* (rhinoceros), the third sign as *nā* derived from *nara* and so on, and arrives at the reading '*Makhanāśāna*, as an epithet of Indra, the chief deity of the Vedic Aryans. The epithet means destroyer of the demon Makha or Asura Makhas, the Asura priests' (*ibid.*: 13).

Perhaps Krishna Rao's theory might have clicked had he continued with the same principle of acrophony in assigning sound-values to the signs on other seals as well. However, as a result of shift in his methodology, he contradicts his own identification. The inscription on another seal depicting the same deity (fig. 9.3), has been read by Rao as '*Īśāna*', a name of 'one of the forms of Rudra' (*ibid.*: 22).



Fig. 9.3 A seal-impression from Mohenjo-daro

Asko Parpola and his colleagues, who hold that the language used by the Harappans was Dravidian, have the following to say about this very seal (Parpola *et al.* 1970:12): 'In the course of preparing the critical edition of the Indus texts, the authors received an unexpected corroboration of the decipherment. We had assumed, on the ground of scores of seals with different animals but similar inscriptions and *vice versa*, that the pictures on the seals have no connection whatsoever with the texts. Yet, coming to the famous "Paśupatī" seal, which has been commonly interpreted as depicting the god Śiva surrounded by beasts whose lord he is,

we were struck by the apparent similarity between the picture and the inscription which reads:



Applying the hitherto achieved results the text could be translated as follows: "Man of the star (Śiva), the lord of ... ".'

It would thus be clear that the foregoing four readings of one and the same inscription are wide apart. And, as already noted, the more interesting part is that not even two Sanskritists agree with each other, nor do any two Dravidianists!

While no disrespect is meant to any of the decipherers — in fact they deserve all praise for their daring efforts, the basic trouble seems to be that many of them do not have any methodology and often depend on what they call 'intuition'. And even where some methodology is adopted, it is more often than not replete with inconsistencies. As examples of this, I give below two cases, one each of a Dravidianist and a Sanskritist.

When a fresh fillip was given to the decipherment of the Harappan script in the mid-1960s, the Finnish team (Parpola *et al.*) came out with a publication in 1969, entitled *Decipherment of the Proto-Dravidian Inscriptions of the Indus Civilization*. This created a great deal of stir. The following year I published a paper (Lal 1970) in which I demonstrated how the very fundamentals of the Finnish approach were untenable. Although the Finnish booklet and my paper are twentyfive years old, it may be well worthwhile to show, as an example, how things go wrong.

The starting piont of the Finns' approach was (Parpola *et al.* 1969a: 5): 'The bearers of the Indus Culture were most probably Dravidians, and among the several factors leading to this judgment, one of the most important is the iconography of the Indus seals. A "proto-Śiva" is depicted as a horned deity with three faces, squatting on his heels inside a circle of animals, only too reminiscent of the principal deity of classical Hinduism and of contemporary South Indian Dravidians.'

The Finns further argued *(ibid.*: 6): 'Reference must be made to the strongly held tradition of three successive literary academies of the ancient Tamils, mentioned for the first time in the commentary on Iraiyanar Ahapporul, which may be of the 8th or 9th century AD. According to the story, the first academy had 549 poets as its members during its 4440 years of existence in the old city of Madurai, which was once situated to the south of Cape Comorin, but was eventually washed away by the sea. The second academy, lasting 3700 years, and giving its approval to the works of 3700 poets, had its seat in a city called Kapadapuram, which was also lost. During the last period of 1850 years the academy worked in modern Madurai in Tamil Land, accepting the work of 449 poets.'

If the foregoing tradition, howsoever 'strongly held', is to be believed, the setting up of the first Tamil academy would go back to the 9th millennium BC. For all one knows, this was the Upper Palaeolithic/Mesolithic time in southern India. Indeed, it would be difficult to persuade ourselves to believe that the Upper Palaeolithic/Mesolithic folks could have been of such high 'literary' calibre as to establish 'academies'. The reference to these academies (in a 8th-9th century-AD work) seems to have been brought in the picture probably to impress upon the reader that Tamil literature is very, very old and thus may have well existed in the days (third millennium BC) of the Harappan Civilization.

With the pro-Dravidian premise, the Finns set out on their decipherment and took two signs, usually occurring at the end of the inscriptions, as representing respectively the genitive and dative case-suffixes (fig. 9.4).

	Singular	Plural
Nominative	zero	[illegible]
Genitive	[illegible]	[illegible]
Dative	[illegible]	[illegible]

Fig. 9.4 Case suffixes, according to Parpola

In my review (Lal 1970) of the Finns' work, I published a large number of early (1st cent. BC-AD) Tamil inscriptions occurring on the pottery from Arikamedu near Pondicherry and showed that while recording the name (evidently of the owner) on a pot (and the same is the case in respect of seals and sealings) the genetive case is not used at the end of the name in the Tamil language. Out of the aforesaid inscriptions there was only one that used the genetive ending, and it was in Prakrit, a derivative of Sanskrit.

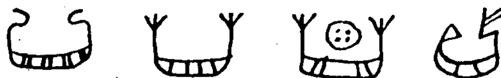
In spite of the preceding weakness of the case, let it be examined how the Finns arrived at the conclusion that



represents the genetive-case ending. They regarded this sign as representing a boat which in Dravidian languages is called '*Ōṭa*'. Using the principle of homophony they gave to the sign the sound-value *ōṭu-ōṭu* which is a comitative suffix in the Dravidian languages. This exercise would have made some sense, had the initial premise been sound. The Finns have taken the sign



to represent a boat, on the basis of the following Sumerian parallels.



But the parallels are far-fetched, since the Sumerian boats are horizontally elongated and have invariably two lines at the base with hatching in between, perhaps representing the oars. In marked contrast, the Indus sign is vertically elongated, does not have a double-lining at the base and there are no hatchings too. Much worse was the reference by the Finns to a painted design occurring on the Cemetery H pottery at Harappa, viz.

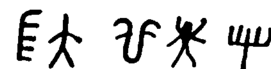


which they regarded as '"boat of death" mentioned in the Vedic literature'. In the first place, Cemetery H Culture is later than the Mature Harappan stage. Secondly, the Cemetery H painting represents a schematic drawing of the necks and beaks of two peacocks back-to-back (and definitely not boats), as would be seen from the context in which other figures of peacocks occur (fig. 9.5).

Yet another small instance before we wind up our discussion on the Finnish attempt. These scholars have regarded the signs

 and 

as representing respectively the masculine and femine genders. While the human figure may reasonably represent the male, the argument presented by the Finns in respect of the other sign is like this: This sign is similar in shape to that of a comb, for which the Dravidian word is *peṇṭika*. Using the principle of homophony, the Finns have taken this sign to signify '*peṇṭi*' a word for woman in the Dravidian languages. This may have worked well, had not we got an inscriptioon like the following:



In it both the male and female signs occur side by side. Are we then to believe that the person concerned was a hermaphrodite?

So much for a Dravidian theory. I now put forward the odds against a Sanskritic one

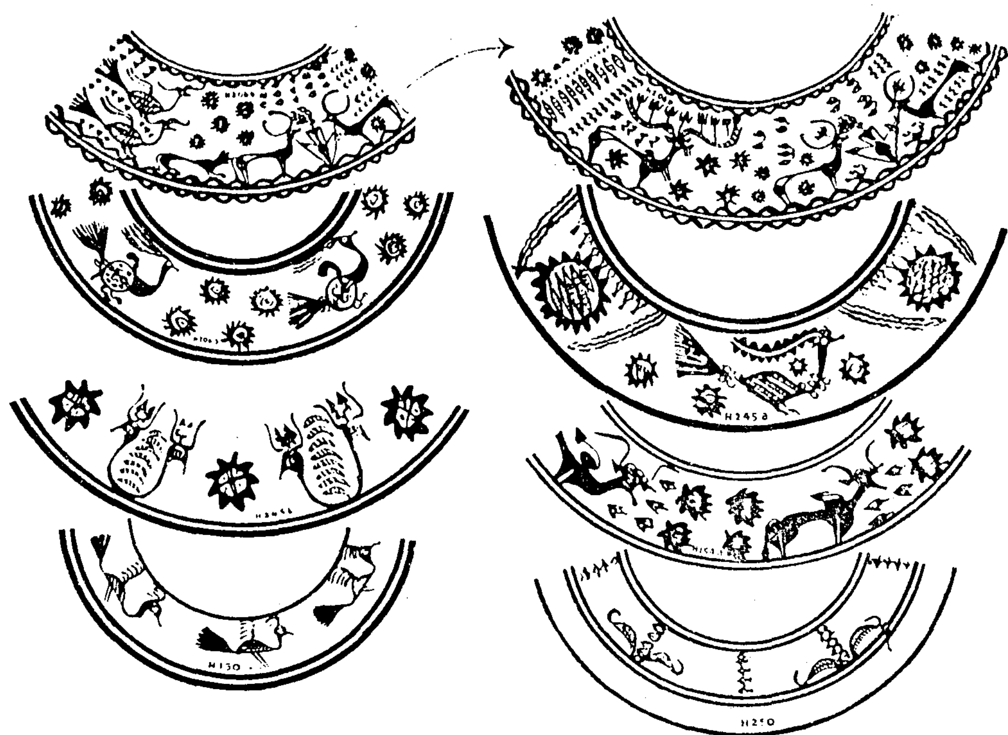


Fig. 9.5 Painted designs on Cemetery H pottery, Harappa

too. The example I take is the thesis of S.R. Rao (1973, 1979, 1982, etc.). Very briefly, Rao's basic stand is that the Harappan script is alphabetic and the phonetic values of most of the signs are the same as those of similar signs in the Semitic script.

It is generally believed that the Harappan script had about 400 signs. But Rao drastically reduces them and ultimately brings them down to a bare 20, stating that many of the signs, sometimes even three or four, represent the same alphabet. Thus, for example, he holds that the signs



represent a single alphabet, viz. 'p' (Rao 1982: fig. 8). There is, however, ample evidence to demonstrate that these signs are separate entities and not just alternatives (cf. Mackay 1938, vol. II, pl. XCIV, 398; Marshall 1931, vol. III, pl. CVI, 80). Likewise, the 'alternative'-stance taken by Rao in respect of many other signs is also questionable. Thus, his stand in first limiting the number of signs to 20 and then calling them alphabets does not hold good.

Having cut down the number to twenty, Rao proceeds to assign phonetic values to the signs. In doing so, he compares them with the signs in the South Semitic script wherein the number is also about the same. The inscriptions that he uses for the comparison are: Ahiram sarcophagus inscription, dated to the 13th century BC by I.J. Gellb or to the 11th century BC by David Diringer; and Gezer, Shechem and Lagash inscriptions, ranging in date between 1600 and 1200 BC. The late dating of the South Semitic inscriptions just referred to *vis-a-vis* the chronological horizon of the Mature Harappan Culture (ca. 2600-1900 BC) would *ipso facto* mean that the Mature Harappans could not have borrowed the signs from the South Semitic script. Also, even if it is argued that the South Semitic script borrowed the signs from the Harappan script and retained the same phonetic values,

there are two pertinent questions which must be answered. In the first place, did the borrowing take place after the Mature Harappan Civilization itself had come to an end? If so, what were the channels of contact with the Semitic world at that time? Secondly, if the Semites borrowed the script from the Harappans, what prevented them from borrowing the system of using vowels and conjuncts which, according to Rao, was the most distinctive feature of the Harappan script? In fact, Rao himself is not very sure of the borrowing by the Semites from the Harappans, which is indicated by his statement (Rao 1982:32): 'The introduction of vocalic signs in the Harappan and Late Harappan scripts was helpful in writing a non-Semitic (Indo-European) language.' The use of the word 'introduction' would imply a kind of addition to something which was already in existence. This would once again reverse the position and would imply, according to Rao, that it was the Mature Harappans who did the borrowing from the Semitic script and made certain innovations to suit their needs. But, once again, how could this be possible, since the South Semitic script, as already indicated above, post-dated the Mature Harappan period? It is thus clear that there are many loopholes in this proposed Semitic >Harappan borrowing.

Since many signs in the Harappan script did not occur in the Semitic, Rao had to draw upon other scripts. Thus, Rao drew the U part of the Harappan sign



from the Sumerian and invoked the Akkadian and Ugaritic cuneiform writings for the addition of the horizontal strokes, arguing that these strokes represent additional vowels. To assign a phonetic value to the sign



Rao gives the following argument (Rao 1982: 83): 'Since it is shown that the language of the Indus writing had close affinity to that of the *Ṛigveda* the Harappan sign for "man" must have had a phonetic value analogous to the word for "man" in the *RV*, viz. *nṛ/nara*. The "man" sign is, therefore, given the phonetic value *ṛ* from *nṛ*. The alternative value *n* is not suitable because conjuncts formed by *n* with *p*, *k*, *h*, etc., are very rare but conjuncts of *ṛ* with *p*, *k*, *g*, *t*, *d*, etc. are common in Indo-Aryan.' According to the normal rules of acrophony, the value should have been *n*, the first consonant, and not *ṛ*. But Rao has chosen what suited him. The same pick-and-choose technique has been adopted by him in assigning the phonetic value of *ś* to the sign



(Rao 1982: 90).

One would have tried to persuade oneself to ignore for a while the aforesaid drawbacks in assigning the phonetic values to the Harappan signs and their relationship with the Semitic script had the end-product shown some sensible results. Rao calls the deciphered language as Sanskrit, but in that language, we do not have the duplication of consonants right at the beginning of a word, while many of Rao's readings, e.g. *ppa-ka* and *mma* do have it. And how does one get over the reading for the inscription



(no. 7201 on p. 152 in Mahadevan's *Concordance*) which, according to Rao's phonetic values, would be *ha ha ha ṛ*. What kind of word would it make in Sanskrit? May it be left to other Sanskritists to decide?

It would be clear from the foregoing that none of the claims regarding the decipherment of the Harappan script has so far stood the test. Any successful decipherment should satisfy at least the following minimum conditions. First, there should be a sound reasoning for assigning phonetic values to the signs

concerned. Secondly, a value once given should be consistently used for all decipherments and not changed from inscription to inscription under exigencies. Finally, the reading thus arrived at should make sense in the language sought to be read and should follow the semantics and rules of grammar in that language.

To conclude. Although the picture so far is not very rosy, there is no cause for despondency. We have already hit upon some of the basic behaviours of the script. A chance-discovery of an inscription having the same text both in the Harappan script as well as in an already deciphered script would no doubt be the greatest boon. However, in the absence of such an inscription, if we are lucky even to get longer texts in which, besides just proper names, names of objects and verb-formations occur in different permutations and combinations, it may be possible to work out the script-language relationship. The declensions of nouns and conjugations of verbs behave in a particular way in Sanskrit. Likewise, the Dravidian languages have a different ethos. Let us continue to be optimistic.

X

DISPOSAL OF THE DEAD

In his report on Mohenjo-daro, Mackay (1938: I, 648) stated as follows: 'The complete absence of burials, save a few which circumstances suggest were the victims of tragedies and a very few fractional burials, points to cremation as the chief mode of the disposal of the dead.' However, soon after Mackay's report saw the light of the day, in 1939 K.N. Shastri hit upon burials about 250 m to south of Mound AB at Harappa, thus belying the view of Mackay. Shastri continued his work for some years and in 1946 Wheeler took up further excavations at the site. Besides bringing to light fortifications around Mound AB, Wheeler also exposed a large number of graves in the Cemetery Area (R-37). While these excavations gave us a detailed insight into the burial practices of the Harappans, subsequent work at Ropar, Kalibangan, Lothal and Surkotada has added new dimensions to our knowledge. We shall deal first with the evidence from Harappa where more work has been done recently by Dales, Kenoyer and their colleagues (see in Meadow 1991) and then take up the other sites, highlighting the more noteworthy aspects.

The normal practice, as revealed by the graves at Harappa, was to place the dead body on its back, oriented in the north-south direction, with the head on the north and slightly turned to face the east. The pit was large enough to contain not only the body but also some grave-goods. These consisted of pottery and a variety of other objects. The pottery included practically all the noteworthy types, such as dishes-on-stand, cups-on-stand, beakers, goblets, basins, cooking vessels, storage jars, ring-stands and even the beautifully painted S-shaped jars, as if to meet the needs of the dead in the life hereafter. The presence, in one case, of fowl-bones indicative of food-provision and even of a lamp to provide light during the anticipated dark journey ahead, fully supports such an assumption. The dead often continued to wear ornaments, such as earrings, necklaces, bangles, finger-rings, anklets, etc., variously of copper, steatite paste and shell. Dales and Kenoyer (1991: 195) state: 'Four burials of what are probably adult females were found with shell bangles on their left arms. The bangles were arranged on both the lower and upper arm.' This physical evidence goes well with what we see in the case of the famous bronze dancing girl. They further add *(ibid.*: 199) that 'the most dramatic ornament consisted of three shell rings, a jasper bead and a collection of hundreds of tiny microbeads that were located to the right of the skull. This

was found on what was probably an adult male who was buried in a coffin with over a dozen vessels arranged at the head of the pit and additional vessels along the side of the pit. On the left wrist was a shell bangle and near the right hand a carnelian bead.' If indeed the sex-identification turns out to be correct, it would be interesting to note that the males were also fond of wearing ornaments on various parts of their body. The graves also contained objects of toiletry such as antimony rods and copper mirrors. One would, however, look in vain for even an iota of the riches of the Ur cemeteries: for all one can guess, these Harappan burials belonged to the average citizen, there being no royals involved.

At the same time, it must be admitted that some graves were a bit different from the usual rut. Thus, in some cases, mud-brick lining was given to the grave. In one case even a tumulus of mud-bricks was erected over the grave, evidently to mark it out from the rest. However, much more interesting were a few graves in which the dead body was placed in a coffin. As identified by experts, in one case the frame was made of local rosewood but the lid was of deodar *(Cedrus deodara)*, a tree growing up in the Himalayas from where the wood must have been obtained.

The cemetry at Kalibangan lay about 200 m to the west-southwest of the Citadel — placement not much different from that at Harappa. In all, thirtysix graves were exposed, which are classifiable into three distinct types, called here for convenience Types I, II and III. Of these, Type I contained skeletal remains, while the other two did not, though, as would be seen shortly, even these had funerary association. Of Type I, twelve examples were noted. These were similar to the ones at Harappa, i.e. having an extended supine body, oriented north-south with the head on the north, as well as pottery and other grave-goods (pl. XLIV A). In fact, as at Harappa, here also one of the graves was lined with mud bricks (fig. 10.1), but with a difference. In the Kalibangan example, the pit was very large and the brick-wall had a 2-cm thick plaster. Further, there was a very large number of pots, placed in two groups — one consisting of thirtyfive lay underneath the body, while the other, of thirtyseven, north of the head. The body, of course, lay supine, the head on the north but turned to the west. In a single case of Type I the body lay prone instead of supine, with the head towards the south instead of north. The legs and arms were also somewhat folded. Whether this was a mere aberration or had some significance, little can be said.

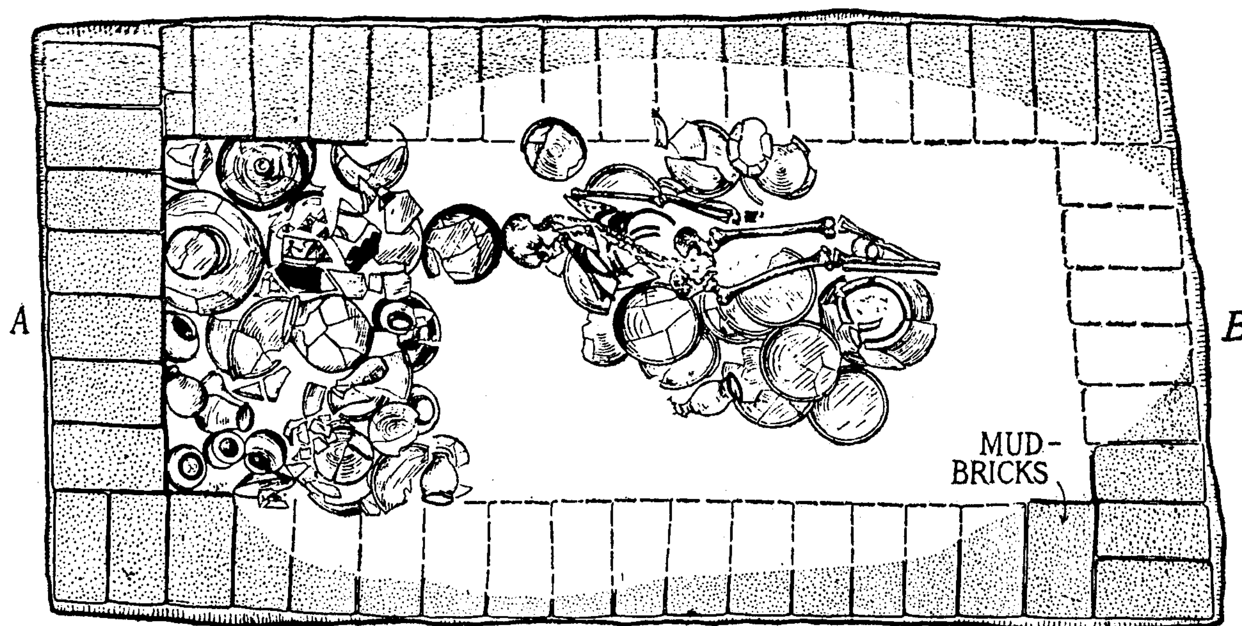
Interspersed with the inhumation burials (of Type I) were 'graves' of Type II, which it needs to be emphasized, were completely bereft of any skeleton, full or even fractional. Six examples of this type were identified. Though there were no skeletal remains, yet the pits were large enough, as in Type I. In one case, the pit, oriented north-south, measured 4 x 2 x 1 m. At its bottom were placed numerous pots, covering almost the entire floor. As if to complete the funerary set-up, there were three shell bangles too. Overlying the pottery and bangles were bands of sand and clay, indicating that the pit remained open for some time during which these layers could accumulate (pl. XLIV B). The pit was finally filled with clods of earth. In another case too there were, besides the pottery, a string of steatite beads, a carnelian bead and a shell bangle, all overlain by bands of sand and clay. Like the two examples just mentioned, the others too had pottery overlain by bands of sand and clay, but there were no skeletal remains.

Attention may also be drawn to an example of Type II in which the pit, oriented north-south, was unusually large, viz. 5 x 1.5 x 1.5 m, and, because of its great depth, was provided with two steps on the eastern side.

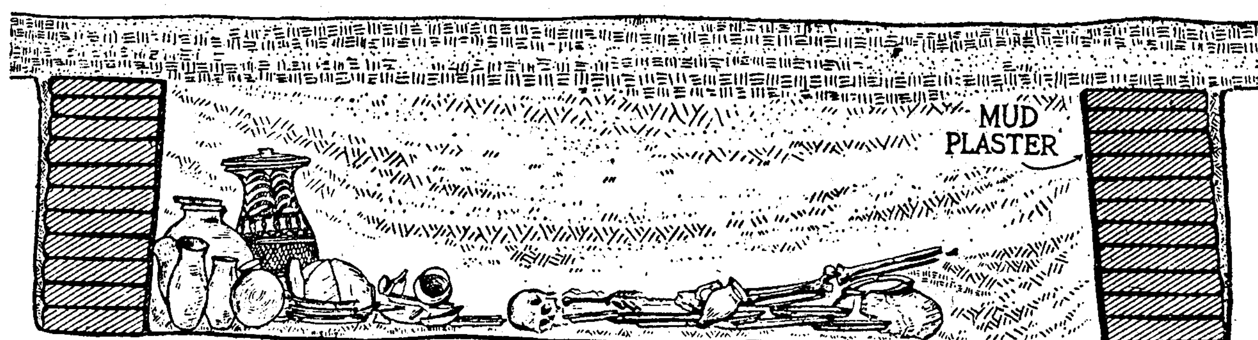
KALIBANGAN, *GRAVE 29*



PLAN



SECTION AB



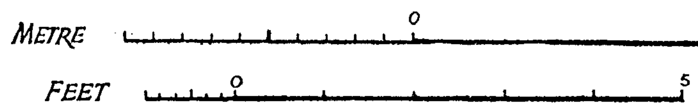


Fig. 10.1

On the pit-floor there was a large number of pots but no skeletal remains. Overlying the pots were the usual bands of sands and clay. However, cutting subsequently through these bands was another pit, measuring 2.6 x 1.4 m and falling within the outline of the first-mentioned pit. It also did not go all the way down. This second pit contained an extended supine skeleton, with the head, as usual, on the north, some pottery and two beads, one each of gold and carnelian. This grave raises a question: was Type II also ultimately meant to carry a skeleton? Or, was it just a chance that a grave of Type I was dug within an area where a grave of Type II pre-existed? Since this was a solitary example, no guess can be conclusive.

Graves of Type III lay a little to the north of those of Types I and II, in a somewhat separate group, though within the same general cemetery area. The graves of this type, however, were circular or ovoid, instead of rectangular as in the other two types. The diameter/longer axis ranged around 2-2.50 m and the depth 40-60 cm. Of the sixteen examples excavated, as many as fifteen did not yield any skeletal remain. Only one produced a piece of bone, but it was so fragmentary that nothing could be made out of it. However, all these pits contained pottery as well as other grave-goods. The latter comprised: in one case, copper rings and rows of steatite beads; in another, shell bangles; and in a third, a copper mirror. Amongst the pottery, in each case there was a large globular jar (pls. XVI B and XLV B). It was thought that in case this was a post-cremation type of disposal, the jar, being the central piece, might contain some charred bones and/or ashes, but nothing of the kind was found. At the same time, the funerary nature of this type cannot also be set aside, because of its location as well as contents.

The presence of three different types of 'graves' at Kalibangan raises some vital questions. Do the different types belong to different ethnic/religious groups? Or, do these belong to three different strata of the society? Or are these ascribable to different chronological horizons? In respect of the first two questions, we are afraid, the issue cannot be settled one way or the other. As regards the chronological sequence, there is only one case in which a grave of Type I overlay that of Type II, but being a single example it cannot be used for any generalization. Graves of Type III, located a bit away from those of Types I and II, do not lend themselves to any sequential judgement. Is there then any other explanation? Could it be that Type I, also met with at Harappa, was the normal method of the diposal of the dead by the Harappans, while Type II may represent a temporary repository of the dead body before it was moved on to Type I? This might explain the absence of any skeletal remains from Type II as well as the subsequent deposition of the bands of sand and clay, signifying desertion. Type III, it may be recalled, was bereft of any skeletal remains but had pottery and other grave goods. However, in this case there were no sand-and-clay bands. Was it meant to symbolize the 'burial' of a person who may have died elsewhere? Admittedly, none of the foregoing formulations can be duly substantiated in the present state of our knowledge.

Some interesting palaeopathological data are available from the Kalibangan skeletons. In one example, a child had an unusually large head: it was perhaps a case in which excessive accumulation of water in the brain-cells causes swelling and consequent enlargement of the head. To deal with such cases, the ancients used to trephine the skull and the same is evidenced in the Kalibangan example. In the right temporal region there are three small holes which may have been driven by the Kalibangan 'surgeons' to take the fluid out. Further, a black line, joining two of the holes and even going a bit beyond them, shows that the treatment also included the insensitization of the relevant nerves by

branding them with some fine, heated instrument. Cases of trephination have also been noticed in the Neolithic levels at Burzahom in Kashmir and at another Harappan site, viz. Lothal. Literary evidence shows that it was practised by Jīvaka, a medical luminary contemporary with the Buddha.

An adult skeleton at Kalibangan bore, on its left knee, a 3-cm deep and 9.5-cm long wound which had not healed. It is likely that the person died of profuse bleeding. Maybe there was a feud in which someone attacked him with a hafted axe, since the length of the wound is not much different from the average span of the blade of a Kalibangan axe.

Perhaps here we may also refer to some palaeopathological observations made in respect of the skeletal remains from Harappa. Dales and Kenoyer (1991: 210) refer to 'three cases of arrested growth lines appearing on long bones (visible on radiographs), which suggest that growth during childhood was halted temporarily in these individuals. Growth arrest may be caused by malnutrition or other physiological stress such as an acute illness. There are several cases of severe arthritis in the neck, including fusion of adjacent elements. This could be associated with unusual stress on the neck vertebrae, such as would occur with carrying heavy loads on the head.' A case of death at the time of childbirth seems to be indicated by a burial in which there was a woman, about 21-25 years of age, with an infant under her lower right leg (*PA*, no. 24, 1989, pp. 91 and 95).

The cemetery at Lothal lay to the northwest of the settlement. In all, twenty graves were identified, of which sixteen were fairly well preserved while the remaining four were disturbed. Of the sixteen, four and seven belonged respectively to Phases III and IV which were Mature Harappan and five to Phase V, Late Harappan. All the graves were of the inhumation type, in which the dead body was usually placed supine in an extended position. It was oriented north-south with the head on the north, slightly raised and tilted to the east. In three cases, however, two bodies, instead of the usual one, were met with and we shall discuss their implication a little later. One of these two-skeleton graves was also lined with bricks the size of which, however, was in the ratio 1:3:5, viz. 7.5 x 22.5 x 37.5 cm (pl. XLV A). In respect of the grave goods the Lothal cemetery was rather poor: a maximum of five pots, and sometimes an odd copper ring and a few shell bangles. However, in one of the graves were found the teeth of *Bos indicus*, in another the horns of a sheep and in a third one a few fragments of animal bones.

As at Kalibangan, the skull of a child, about 9-10 years of age, bore marks of trephination. In the case of an adult skeleton, fractures on the cranium and legs were noticed, while in another case the tibia bore chopping marks. It is just probable that in these two latter cases, the death may have occurred due to some violence.

We may now return to the three cases (Graves 2, 7 and 11) in which two skeletons each were found. The skeletal remains from Lothal were examined by two sets of experts. According to one of them (S.S. Sarkar in Rao 1985: 269 ff), of the two skeletons in Grave 2, one was that of an adult male while the other of a young adult whose sex could not be determined. In respect of Grave 7, he observed that both the skeletons were of male adults and had a 'familial resemblance'. In the third case (Grave 11) too his findings were that both were males (in Rao 1985: 272), though Rao interprets them somewhat differently, viz. one is male and the other is also 'suspected' to be so. Further, citing the other set of experts, viz. B.K. Chatterjee and G.D. Kumar (1963), Rao (1979: 141) adds: 'In this connection it may be mentioned that according to Chatterjee and Kumar four skeletons from Lothal are said to be females. Two of them are from joint burials'.

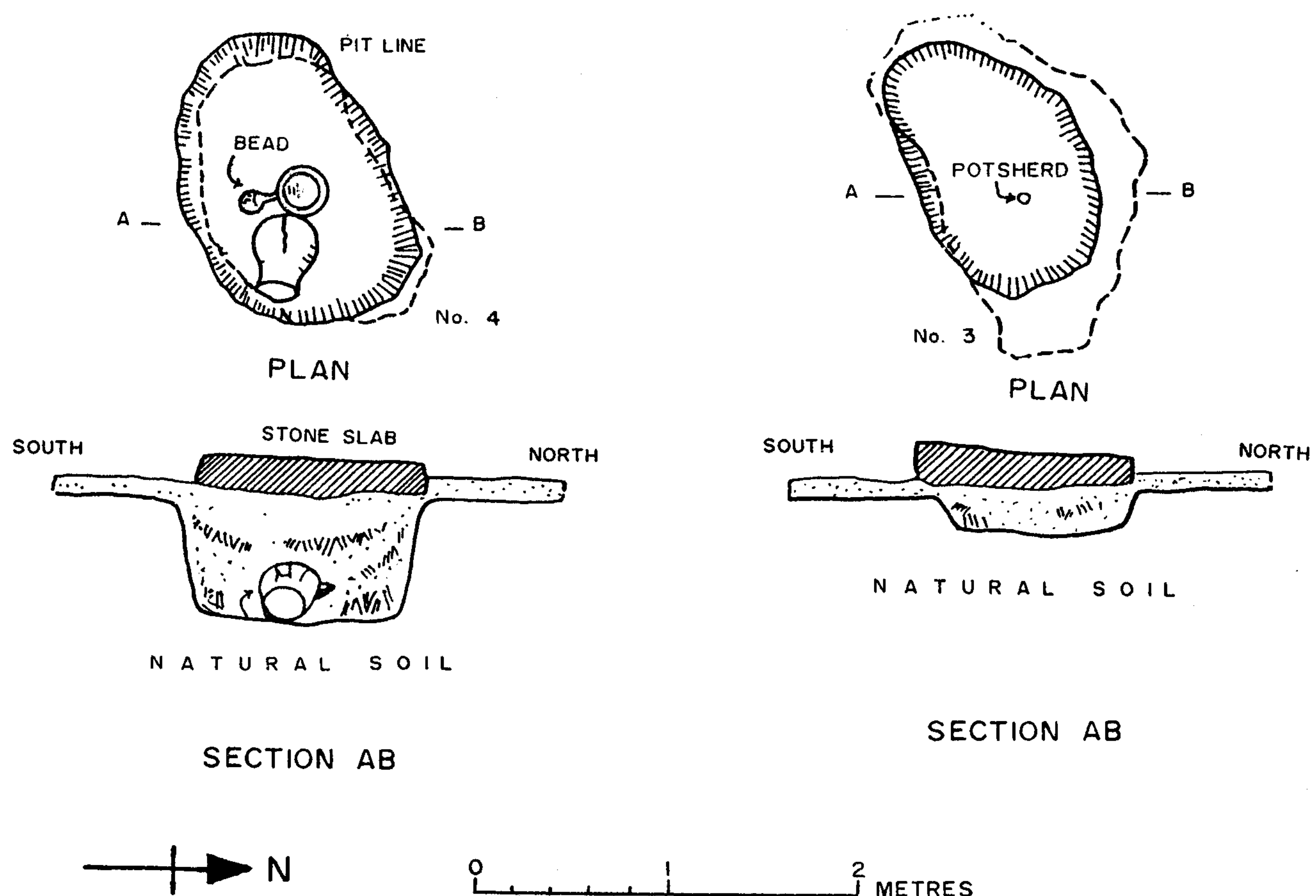


Fig. 10.2

In view of the foregoing divergent views, it is difficult to establish categorically that these were cases of *satī* involving a male and female in each case. It would thus be futile, at least in the present state of our knowledge, to affirm that the system of *satī* goes back to the Harappan times.

No complete inhumation burial was discovered at Surkotada, though the possibility of such a type having existed there cannot be ruled out. However, the types actually encountered were different from those found at any of the three sites, viz. Harappa, Kalibangan and Lothal. In the Surkotada cemetery, which was located to the northwest of the settlement, four graves were excavated. To take an example (Joshi 1990, Burial no. 4; here fig. 10.2). In it the grave-pit was ovoid on plan, with the longer axis from northeast to southwest. The two axes measured respectively 1.6 m and 0.82 m, but the depth was only about 30 cm. On the floor of the pit had been placed a few pots, including a basin-on-stand, a conical flask and a globular water-pot. However, no bones were found in this burial. The pit was finally covered with an almost rectangular stone slab measuring 1.44 m x 0.82 m. In another case (Burial no. 3; Joshi 1990: 369), 'the pit yielded a red ware sherd of an urn and very small charred human bone splinters

or remains'. In this case too the pit was covered with a stone slab. Commenting on the contents of this burial, Joshi states: 'The post-cremation human remains found in a burial bear a great significance. The relatives of the dead in all probability out of regard for the deceased used to take care of the burnt or charred bones after submission of the corpse to fire.' Burial no. 1 was not covered with stone slabs, but with stone rubble. However, there is evidence of the pit having been provided with a lining of stone slabs. Besides a couple of pots, the grave yielded a few 'fragmentary, uncharred, human skeletal remains', suggesting 'a secondary and fractional interment'. Burial 2, like Burial 4 (above), contained only pottery but no bones. Thus, the presence of only a few charred/uncharred bones in the grave-pits and their having been covered with 'capstones' and/or 'cairns' place these burials in a category quite apart from the normal Harappan ones. Are the Surkotada graves in any way forerunners of the megalithic types which are characterized by more or less the same features? In this context it may be recalled that in Period IC of the habitation at Surkotada there also appeared the black-and-red ware with white-painted designs and, as we know from the history of this ware, the paintings were given up in the course of time. However, it may be noted that the Surkotada burials have not so far yielded the black-and-red ware, painted or otherwise.

We may now have a brief look at some general aspects of the Harappan population, viz. life-expectancy and physical features. As regards the former, Hemphill *et al.* (1991: 141) furnish interesting statistics in respect of 90 skeletons from Cemetery R 37C at Harappa, as follows:

Category	Age Range	Number
Subadult	< 16 years	15
Young Adult	17-34 years	35
Middle-aged adult	35-55 years	27
Older Adult	> 55 years	13

It would thus be seen that while death did not spare younger people, the Harappans could well hope to live up to the age of 55 and beyond.

Now to the physical features. The Lothal skeletons, according to Chatterjee and Kumar (as mentioned in Rao 1979: 146-47), fall under the following three categories:

(i) Large and rugged, long-headed, having high cranial vault, strong brow ridges, and comparatively long and narrow face akin to proto-Nordic or Caucasoid type;

(ii) Medium-headed and smooth, having well-arched cranial contour associated with protruding occiput akin to the proto-Mediterranean or Mediterranean type; and

(iii) Broad-headed, having more or less vertical and flat occiput akin to Alpino-Armenoid type.

However, according to S.S. Sarkar, one of the Lothal skulls revealed an Austroloid strain (in Rao 1979: 146).

The Mohenjo-daro skeletons, though not found in regular graves, do call for attention. According to Sewell and Guha (in Marshall 1931, II, pp. 638-44), these included six identifiable examples of Mediterraneans, three of Proto-Australoids, one of Mongoloids and probably four of Alpines. If we put the Lothal and Mohenjo-daro data together, we get a glimpse into the Harappan population as consisting of the Mediterraneans, Caucasoids, Armenoids, Alpines, Australoids and Mongoloids. Since the available data are very meagre, nothing can firmly be said, but perhaps the Mediterraneans and Caucasoids may have dominated the scene, while the Australoids who represent the population from central parts of India may have been incorporated into the Harappan fold perhaps as artisans/workmen. The Mongoloids, who evidently hailed from the Himalayan region, also landed up in the Harappan cities perhaps as domestic helpers, as they do even now.

In this context, it needs to be stated that the above-mentioned nomenclature, viz. Caucasoids, Mongoloids, Alpines, etc., does not find favour with modern authropologists. While we do appreciate their keenness to do away with an 'antiquated' classification, can we really run away from the fact that the Harappan population does show a variety of ethnic strains?

XI

RELIGION

There are generally two aspects of religion: one, conceptual or philosophical, and the other, practical or ritualistic. The former is usually enshrined in metaphysical texts, while the latter is reflected in the material remains. Since the Harappan script has not yet been deciphered, it is difficult to say what various topics the seals deal with, though, besides their trade-related contents, they seem to have some kind of religious association as well. But even if one day we are able to break the code, it is doubtful if we will have a full picture of the metaphysics of the Harappans since the inscriptions are too short to carry much of such stuff. Under the circumstances, subjectivity is bound to play a major role in interpreting the pictures depicted on the seals. More or less similar would be the case with the other kind of data, such as structural remains and portable objects like sculptures, terracottas, etc.

Subjectivity, by its very nature, can lead to widely — nay even wildly — divergent conjectures and here we shall illustrate the point with one example. The impression of a seal from Mohenjo-daro (pl. XIV C) has two registers, one below the other. In the right-hand corner of the upper register there is a figure with 'three pronged' head-dress and a tail flowing from it or from the back of the head itself. It stands within a U-shaped portal (?) of pipal branches, open at the top but closed at the bottom and provided with some sort of a ring-base. Outside the pipal-enclosure, there is another figure, kneeling, as if in supplication. Behind this latter figure there is a ram with outflowing horns. Above the head and back of this animal is an inscription in Harappan characters. At the level of the basal ring of the pipal-enclosure there is, perhaps, another character. In the lower register there are seven standing figures, with their heads turned right, perhaps planning to move in that direction. They wear tunics and have a single-feathered head-dress with a tail hanging down therefrom at the back.

The more widely accepted interpretation of this seal treats the figure within the pipal-enclosure as a deity, the kneeling figure in front of it as a devotee/sacrificer and the ram behind as having been brought in for sacrifice. The seven figures below whose sex, like that of the other two, is difficult to establish, have been thought to represent Seven Seers (*Sapta-ṛiṣis*) or Seven Mothers (*Sapta-Mātṛikās*) of latter-day Hinduism, or just seven ministers concerned with the conduct of the ceremony. However, this very scene has been given an

altogether different interpretation by Walter A. Fairservis, according to whom it represents a wedding ceremony. In his own words (Fairservis 1989: 210), 'The wedding ceremony included the presence of women decorated with peacock-feather headdresses; a sacrificial or gift-animal; the bride wearing a floral crown as in the myth or a gaur crown knelt before the groom, who wears the gaur crown, and who stands in pandal.' It will thus be seen that whatever has been or will be said about these seals, pending the decipherment of the script, will necessarily have to remain provisional and ought to be taken with caution.

Since we have initiated discussion of the Harappan religion with the seals, we shall take up a few more of these. The most quoted seal is the one showing a figure seated on a legged dais (*chaukī*) and surrounded by animals (pl. XIV A).

The legs of the figure are folded and drawn in such a way that the juxtaposed heels touch the part of the body below the genital. The figure appears to have three faces, a frontal and two side ones, though the depiction is such that one cannot be too sure of these faces. On the head there is a gear consisting of two horns of a buffalo and a central bunch of feathers. Surrounding the figure there are, beginning from the right and in anti-clockwise manner, a buffalo, a rhinoceros, a man (unless he be a part of the inscription), five characters of the Indus script, an elephant, a man and a tiger. Below the dais there appear to be two deer, one of which is damaged. By most writers, beginning with Marshall (1931, vol. I: 52-55), the figure has been taken to represent a proto-Śiva in his Lord-of-Beasts (*Paśupati*) aspect.

Against this largely accepted view there are at least three others. To recall, M.V. N. Krishna Rao identifies the figure as that of Indra. However, while dealing with another seal, he identifies the same figure as 'one of the forms of Rudra'. Another view is that of Fairservis who identifies the figure as that of a paramount chief, known as 'Aṉ-il-Piraṉ', i.e. 'The High-placed Lord'. However, the most challenging identification is that by Dhavalikar and Atre (1989). They hold that the figure is that of a female and not of a male; and hence it is to be called the 'Lady of Beasts' and not the 'Lord of Beasts'. Their argument is based primarily on the 'pigtail' or long, hanging plait of hair. They state (*ibid.*: 199): 'There is no evidence to sugggest that the Harappan men wore their hair in a long, free, hanging plait.' And add: 'It may also be recalled that at Harappa and Mohenjo-daro the female figurines are invariably clothed, while the male ones are nude.' With these generalizations, they argue that the seven figures in the lower register of the seal shown in fig. 20.13 of their 1989 paper (here pl. XIV C) are females, and then they identify the deity within the pipal-enclosure in the upper register of the same seal also as a female, because of its pigtail or long, hanging plait. By extension, using the pigtail as the differentia of a female, they take the pigtailed figure in fig. 20.6a of their paper also as a female. Since this last-named figure is similar to that on the *Paśupati* seal, they declare that the latter must also be a female. Hence it must be the 'Lady' of Beasts and not 'Lord'. (Though the pigtail is absent in the *Paśupati* seal, they might argue it out that the view is frontal and not a side one.)

In this context, it must be stated that both the above-quoted assumptions of Dhavalikar and Atre are not borne out by the very portrayals of males and females at Harappa and Mohenjo-daro. Off hand one can cite two examples from Mohenjo-daro, viz. that of the 'priest' or 'priest-king' (pl. IX) and of another statue not illustrated here. The former has been accepted by all scholars to be a male figure, but, according to the above-mentioned contention of Dhavalikar and Atre, it should have had no garment. The other has been described by the excavator as follows (Mar-

shall 1931: I, 358-59): 'The figure, which is 11.5 inches high, is obviously that of a male and is dressed in a thin kilt-like garment fastened round the waist. Another garment or shawl of thin material is worn over the left shoulder and under the right arm, and appears to hang down the kilt. ... A squarish projection at the back of the head is evidently intended to represent a knot of hair. It is, however, unfinished and shows the chisel marks of the preliminary dressing. There is somewhat more finish about what may be a rope of hair hanging down the back.' And can we ignore the famous bronze figure of the dancing girl (pl. X B) which is nude and also does not wear a long hanging plait of hair? In view of the foregoing, it is difficult to accept the view of Dhavalikar and Atre that the focal figure of our discussion (pl. XIV A) is a female goddess and not a male one.

During the course of the recent excavation at Harappa many terracotta sealings have been found in Period IIIC, a late stage of the Mature Harappan. Some of these depict the Seated Yogi figure (proto-Śiva) in different settings. In one case there is, in front of the god, a human being who holds the horns of a buffalo with his left hand and pierces the animal's body with a spear held in the right. The scene reminds one of the *mahiṣa-mardana* concept prevalent in the country for more than a millennium now, although examples from the intermediary periods are wanting. Also, the deity involved in these later cases is a female one who herself kills the buffalo-demon, whereas in the Harappan delineation it is a male god, and the buffalo is not killed by him but by a devotee, as an offering to him. Since proto-Śiva is depicted on a large number of seals, it may be reasonable to assume that he was one of the most, if not the most, popular deity.

While speaking of a proto-Śiva, one might draw attention to another seal (pl. LV A). It depicts a figure similar to that shown on (pl. XIV A). It is also seated on a dais in the same posture, though the headgear is absent. However, instead of the beasts on the two sides, there are two cobras (*nāga*s) with their heads raised, one on each side. Between the cobras and the central seated figure there is, on each side, a kneeling human figure with hands raised as if in prayer or supplication. These human figures may be just devotees or may even be personified representations of the *nāga*s behind. In any case, the association of the *nāga*s with Śiva is well attested to in later Hinduism.

Certain objects having partly cylindrical and partly conical shape, made variously of limestone, alabaster, shell, faience, paste, etc. (pls. L C and D) have been taken (Marshall 1931: I, pp. 58 ff.) to represent the phallus (*liṅga*) and a few hollow ones as the female organ (*yoni*). While the latter objects do not quite resemble the modern forms of the *yoni*, from which the concept seems to have been transferred back to antiquity, some of the elongated objects would seem to represent the male organ. It is thus probable, though not quite proved, that *liṅga*-worship, yet another facet of Śaivism, may have been in vogue during the Harappan times.

It is held that the cult of the Mother Goddess also existed during the Harappan days. In support of this have been cited the terracotta female figurines, often having pannier-like head-dress (pl. XLVII C). The panniers sometimes bear soot-marks too. The figures are often bedecked with jewellery — necklaces, armlets, girdles, etc. It may, however, be stated that these figures do not emphasize the nudity or fertility aspect as such, which is usually a characteristic of the Mother Goddess. No doubt a couple of figures have been shown as pregnant or with a child, but these few individual specimens do not establish the case for the group as a whole representing the Mother Goddess. Dhavalikar and Atre (1989: 197) take these figures to

be 'vestal virgins', offered to what they have called the Lady of Beast. However, it is equally probable that these were ordinary terratcotta figurines like their male counterparts and animal figurines, meant as playthings for the children. The soot-marks on some of the panniers may be explained by similar examples used nowadays on the occasion of Diwālī, a Hindu festival, for lighting lamps. In this context one may also draw attention to *kernoi* (pl. XII A) which too may have been lighted up and perhaps carried about on heads on festive occasions. In any case, the ritualistic association of *kernoi* seems to be clearly attested to (cf. Pande 1971).

However, it is not unlikely that the cult of fertility in some other form may have existed in the Harappan religion. An indication, though somewhat vague, in this direction is given by two seals. One of these shows a female figure upside down, with a plant-like object sprouting from her vagina. On the other seal the depiction is not very clear, yet it has been taken to show 'a bull bison, with erect penis, standing over and fecundating a supine human figure, from whose head emerges a sprouting plant' (Allchin and Allchin 1982: 215).

Besides the foregoing, there are certain other seals which too seem to throw light on the religious beliefs of the Harappans. Thus, for example, some seals show composite animals: the body of a tiger, the horns and face of a bull, the trunk of an elephant. If the animals have a totemic value, then the composite animals may represent the merging of clans. Otherwise, the composite animals may have had some mythological significance which, of course, we would not be able to reconstruct until the script is deciphered. On another seal is an animal with three heads (pl. XIV B). However, on the basis of the horns one may even regard these as three different animals: the one looking downwards may be a short-horned bull, the one looking ahead, a unicorn, while the identity of the one looking backwards, with the horns first shooting up and then curving downwards, is not easy to establish. It may, like the one discussed earlier, be a mythological creature. Or, as per a guess hazarded earlier, the composite figure may even signify contemplation on time — the down-to-earth face signifying the present, the forward-looking one, the future, and the back-looking, the past. Then there are some seals wherein a strong-bodied individual puts up a fight with two tigers, one on each side (pl. LV C). This has often reminded scholars of the West Asian hero, Gilgamesh. Whatever be the correct or ultimate identification of the scenes concerned, the whole point is that these do seem to depict uncommon or extraordinary concepts and may thus have had some sort of mythological import.

That the pipal leaf or pipal tree too may have been sacred is indicated by its association with deities, as for example on pl. XIV C. Its association with the unicorn, as shown on pl. LV B, may also point in the same direction. Further, some symbols too have had certain kind of religious significance. These possibly included the *svastika*, endless knot, etc.

There is yet another aspect of the life of the Harappans which deserves consideration. Certain terracotta figurines depict the individuals concerned in yogic postures (*āsanas*; Rao 1973: 141-43; here fig. 14.5) and it is not unlikely that the Harappans practised yoga in some form. More will be said about it when we consider the Harappan legacy (Chapter XIV).

We may now turn our attention to certain rituals which appear to have formed a part of the Harappan religion, at least in the northeast region, i.e. in the Ghaggar-Sarasvatī basin, and in the south-east, i.e. in Gujarat. These were cults of 'fire-altars' and of animal-sacrifice. Whether or not these rituals were practised by the people living in the main Indus valley it is difficult to say. However, it

is not unlikely that, with the excavation methods adopted at that time wherein massive removal of earth by large gangs of labourers was common, small patches of reddish earth and ashes — vestiges to identify the fire-altars — may have been missed at Harappa and Mohenjo-daro.

At Kalibangan, in many of the houses in the Lower Town a room appears to have been reserved for the fire-altars since these were found associated with successive floor-levels in that room. Even at the risk of repetition, it seems necessary to give some details once again. Roughly rectangular on plan and measuring up to a metre in length and half-a-metre in width, the altars were not overground but sunk into the floor to a depth of about a quarter metre (pl. XXXIII B). The sides were lined with clay plaster. In the central part there stood cylindrical or faceted stele of clay (sometimes well fired), about 30-40 cm in height and 10-15 cm across. Besides ash and charcoal, the pit contained circular-biconvex terracotta 'cakes', as if constituting some kind of offering.

While these evidently had been used by respective householders, there were at least two places signifying public use of fire-altars. One of these was in the southern rhomb of the Citadel. As mentioned earlier, in this part of the Citadel, there were several mud-brick platforms. Atop one of these was encountered a row of seven juxtaposed fire-altars containing ash, charcoal, central stele and fragments of terracota 'cakes' (pl. XXXIII A). The row was oriented north-south and immediately to its east was a wall of kiln-fired bricks, indicating that whosoever used these altars had to face the east. Close by was found the lower part of a pot, embedded in the ground and containing ash and charcoal. Perhaps this contained fire from which further fire may have been ignited in the altars, though this cannot be proved. A little away from the altars there were a brick-lined well, a bathing pavement and a drain suggesting that the persons concerned took a purificatory bath before performing the ritual.

In the Citadel the southern rhomb was separated from the northern by a partition-wall running right across, and since the northern rhomb contained houses and not large individual platforms, it appears that in those houses there lived the priests-*cum*-administrators who performed and guided the rituals in the southern half. Immediately to the north of the partition-wall there was a very wide and long mud-brick-paved pathway (pl. VI B). It has been surmised that the priests marched on it in a procession, crossed the partition-wall by means of a staircase, the remains of which were duly identified, and then came to the platform concerned to perform the ritual.

A group of fire-altars was also noticed in an altogether separate area to the northeast of the Lower Town, viz. in KLB-3 (fig. 6.7). These altars lay within a mud-brick enclosure, indicating it to be an exclusive area for the purpose.

At Banawali there was also an enclosure wall around the fire-altar, forming an apse on the plan (pl. XXXVI A). It is thought to have been an apsidal 'temple', located within the habitation area. Lothal has also yielded ample evidence of fire-altars. These were either rectangular or circular (Rao 1979: 216-18). At Rangpur also there are 'some indications of a ritual involving domestic fire-worship throughout the occupation' (Rao 1962-63: 47).

At Kalibangan, a little away from the fire-altar platform there was another one on which was located a pit measuring 1.25 x 1 m and internally lined with kiln-fired bricks (pl. XXXII A). Within it there lay bovine bones and antlers, indicating some kind of animal-sacrifice. That animal-sacrifice was prastised by the Kalibanganites is also suggested by incised drawings on the two sides of a flat,

roughly triangular terracotta cake (pl. XXXII B). On one side there is an animal, drawn forward by means of a rope (?) by a human being. On the other is a figure wearing a headgear roughly similar to that worn by what has been thought to be the representation of Śiva in his Lord-of-Beasts (*Paśupati*) aspect (pl. XIV A). It is thus likely that the figure drawn on the terracotta cake also represents a deity. Put together, the drawings on the two sides may have been intended to portray the conduct of an animal by a human being for sacrificing it to propitiate the god depicted on the other side.

Lothal also has yielded evidence of animal sacrifice. In a house of Phase III, there was a low platform over which was identified a mud-brick enclosure measuring approximately 85 x 75 cm on plan and available to a depth of about 20 cm. Within it were found 'charred fragments of the jaw-bones of an animal of the bovine group, a circular disk-shaped gold pendant, a carnelian bead, six sherds of a thick storage jar painted in chocolate over buff, and a large quantity of ash. ... It is therefore reasonable to conclude that the mud platform must have been used as a sacrificial altar and the mud-brick enclosure as a sacrificial pit.' (Rao 1979: 218).

In a recent paper, Asko Parpola (1992) suggests that the Harappans practised human sacrifice. In support of his theory he refers to the well-known seal depicting a deity in a U-shaped enclosure of pipal branches (here pl. XIV C) and states (*ibid.*: 230): 'In the "fig deity seal", there is a throne or sacrificial altar beneath the fig tree. The object placed upon it is a human head.' Advancing certain arguments, he adds: 'This suggests that the human head on the "fig deity seal" belonged to a warrior. ... Beheading a victim in sacrifice continues to be central to the cult of Durgā, the Hindu goddess of victory.' However, one is not very sure of the identification of the human head as such. Anyway, more concrete evidence must be awaited before the human-sacrifice theory can be confirmed.

XII

SOCIAL STRATIFICATION AND POLITICAL SET-UP

As we have mentioned earlier, the Harappan script has not been deciphered so far. In such a situation it is very difficult to be sure of any statement that one might make in regard to the above-mentioned topics. Nevertheless an attempt can be made to find out the various possibilities by analysing the material remains such as they are. It is proposed to take up town-planning first and to ascertain if it can throw any light on the social stratification.

Let us begin with Kalibangan. Over here, there were two fortified areas, besides some settlement outside these. The two fortified areas were the usual ones, viz. the Lower Town on the east and the Citadel on the west. The former had a grid-pattern of the streets, running north-south and east-west. These streets divided the town into several separate blocks. Each block had a few houses juxtaposed to one another. The usual pattern of a house was to have a courtyard around which were located a number of rooms. The courtyard was entered through a very large door through which bullock-carts also could easily pass. In the courtyard there lay large troughs for holding fodder and lower parts of large pots for water, both meant for the bullocks and other animals domesticated by the house-owner. In some of the houses there were also rooms with a number of jars evidently meant for the storage of cereals. It would thus be reasonable to infer that houses such as these were occupied by large farmers who may be having their fields either around Kalibangan itself or within a reasonable distance from it. It is likely that some of these persons may have also been trading in agricultural commodities. Quite a few of the houses located in the Lower Town have yielded seals which were evidently used for sealing commodities of trade. This would naturally suggest that the occupants concerned belonged to the merchant class. Thus, the available evidence would seem to indicate, though not categorically prove, that the Lower Town was essentially occupied by an agriculturist-*cum*-merchant class.

As against the layout of the Lower Town, the Citadel had no pattern of gridiron planning. Instead, it was divided into two major sectors by means of a massive east-west wall, one being on the north and the other on the south. Although the northwestern part of the southern sector had been eroded, there remains enough to demonstrate the layout of the structures within it. There were no residential houses. Instead, there was a series of

large-sized and fairly high platforms. These were oriented east-west and north-south and were separated one from the other by means of criss-cross lanes. Although in most cases the upper portions of these platforms have been denuded, at least in two there remains enough to indicate the nature of their use. Atop one of these platforms there was a row of seven contiguous 'fire-altars'. Close by there were a brick-lined well and a brick-paved bathing floor, indicating that the ritual concerned included a ceremonial bath. Likewise, on the other platform there was a brick-lined pit containing bovine bones, suggestive of animal-sacrifice.

The layout of the structures in the northern sector, however, was on an altogether different pattern. There were no platforms, nor were there criss-cross streets separating house-blocks. There was only one street, running in a northerly direction and then turning northwest to reach a riverside exit. On either side of this street there were houses, but none of them seemed to be extraordinarily large so as to be called a 'palace'. It seems most likely that these houses were occupied by priests who looked after the religious ceremonies that were performed in the southern sector. In this context yet another feature may be well worth mentioning. In the southeastern part of the northern sector, between the houses just mentioned and the northern face of the wall separating the two sectors there was a very wide mud-brick-paved pathway running east-west up to a stepped entrance leading into the southern sector. What exactly was the purpose of providing this grand passageway? Amongst the various guesses that could be hazarded one may include the possibility that the passageway was used by the priests who moved in a ceremonial procession for conducting rituals on the platforms in the southern sector.

From the foregoing discussion it would be seen that the 'Citadel' may have been the seat not of a 'king', but of a group of priests, with perhaps a chief priest amongst them. The administrative and political fall-out of such a possibility will be discussed a little later.

To the south of the Citadel there was another segment of the habitation. It was not fortified. The small-scale probing that was done in this area indicated that the houses were rather small as compared to those in the Lower Town or in the northern sector of the Citadel. At the southwestern periphery of this area there lay heaps of pottery-waste, suggesting that near here was probably a potter's kiln. Altogether, the picture of this unfortified area seems to be that of a colony of manual workers.

The foregoing evidence from Kalibangan would tend to suggest that there was at least a threefold division amongst the inhabitants: (i) a priestly class inhabiting the Citadel; (ii) an agriculturist-*cum*-merchant class occupying the Lower Town; and (iii) a workers' class living outside the two fortified areas.

Let us now see how the evidence from the layout of Kalibangan compares with that from other noteworthy Harappan sites.

Like Kalibangan, both Mohenjo-daro and Harappa had a Citadel and a Lower Town. One of the more important buildings inside the Citadel at Mohenjo-daro was the Great Bath, with its surrounding corridors and rooms, the last-named perhaps used for an after-bath change. Immediately to the north of the Great Bath, there was a building which had eight separate bathrooms on the ground floor, with steps in each room leading evidently to the upper storey. It has been surmised that in the rooms upstairs there lived the priests who would come down at specified hours, take their bath, and then join those gathered in the Great Bath complex for some kind of rituals.

A pretty large building to the east of the

Great Bath, having a central courtyard, surrounded by corridors and spacious rooms has been surmised to have been the residence of 'the high priest' himself, possibly accommodating a few more priests of the top echelon. An alternative interpretation puts it as a 'College of Priests'. Not far to the east is the Buddhist Stupa and there is a presumption that underneath it may be lying the remains of a 'temple' or some very significant building of religious denomination, ascribable to the Harappan days. In this context one might also recall the existence, in the southern part of the Citadel, of a pillared building which may have been used for holding periodical assemblies, not unlikely of a religious or religio-administrative kind.

The presence of a granary to the west of the Great Bath may also not be without significance. It seems most likely that the occupants of the Citadel-complex, who in all likelihood included priestly elites, also controlled a certain amount of surplus of the food produced by the community. Maybe the people offered some kind of a set tribute on a regular basis or on specified occasions and the same was stored in the granary, to be used as and when needed.

The Lower Town at Mohenjo-daro presents the picture of a well-to-do community which may have been engaged in trade and commerce and also exercised control over agricultural production. However, amidst the large-sized houses one cannot fail to notice some very small ones too. For example, in the HR Area a barrack-like complex has been exposed. It consists of two north-south back-to-back rows, accounting for a total of sixteen tiny units, each unit consisting of only two small rooms. In these barracks there evidently lived the poorer people who may have worked for the more affluent ones, assisting them either in their workshops or even doing the household chores. On the periphery of the township there is also evidence of small tenements which too may have been occupied by a similar class of people.

At Harappa, the Citadel is well fortified and within it there is evidence of the structures having stood on platforms. However, not much work has been done inside the Citadel area so as to produce a clear picture of the layout, viz. whether it followed the pattern of Mohenjo-daro or of Kalibangan or it had an individuality of its own. Nevertheless one thing is self-evident that those who occupied it were the elites, whether wielding religious or political power or a combination of the two.

Immediately to the north of the Citadel and thus within an easy control of it there were, amongst other structures, a series of grain-thrashing platforms and quite a few furnaces, all signifying various kinds of workshops. And nearby were the workmen's quarters, of very humble dimensions, juxtaposed in rows. These were evidently occupied by the lowly ones, who depended for their livelihood on the employment provided by the elites. The Lower Town at Harappa also seems to have been fortified. The available evidence suggests that it may have been occupied by the middle class people.

If we now cast a glance at the southern region of Gujarat we would find that sociologically the picture was not much different. For example, though Lothal does not have a separate 'Citadel' and a Lower Town like those in the northerly domain, it does have the concept in an operational form. Thus, within the walled township, we have in an exclusive part the 'Acropolis', evidently controlling activities at the close by dockyard, wharf and warehouse. Unfortunately, however, not much has survived of the structures that once stood on the high-platformed Acropolis. But the row of twelve adjacently built bathing pavements, together with a well-conceived drainage system and a large well,

all require an intelligible explanation. If, in this context, one recalls the bathing pavements within the structure located to the north of the Great Bath at Mohenjo-daro or the bathing ritual associated with worship at the fire-altars, envisaged in the case of Kalibangan, one may not be far too wrong. Perhaps in the case of Lothal too, for all one can guess, some such collective bathing, followed by the performance of certain rituals may have been involved. If that be so, the authority holding charge of the Acropolis may have derived its strength partly, if not wholly, from a religious background.

In terms of actual physical position, Lothal did have a 'Lower Town', since whereas the Acropolis was located on a platform, the rest of the habitation, constituting a major portion within the walled area, was on the level ground. Herein were the houses of the middle class people, engaged in various pursuits including the manufacturing of valuable commodities and trading in them.

The excavator also speaks of certain structural remains outside the walled township. These remind us of similar habitational remains at Kalibangan, etc. Maybe in these outside dwellings there lived people who worked for those occupying the Acropolis and even for the more well-to-do ones in the rest of the township.

A final seal on this threefold division amongst the Harappans is put by Dholavira which has three well defined parts of the settlement, called by the excavator respectively the Citadel, Middle Town and Lower Town. This is an ideal site for long-term horizontal excavation from which alone can be had a clear picture of the nature of the buildings and of the occupational and other activities of the people residing in these three different divisions.

If we now look back at what we have stated so far, there does emerge a picture according to which the Harappans seem to have been divided into three sections, viz. an elite associated with the Citadel or Acropolis, a well-to-do middle class occupying the Lower Town, and a relatively weaker section working for the former two categories. Whether these divisions were based purely on economic factors or had a socio-religious impress as well cannot be categorically stated. At the same time, the evidence from Kalibangan would seem to indicate that religion did play a part in it. The elites occupying the Citadel at this site seem to have derived their authority from religion and commanded perhaps the highest position in the hierarchy. Next, of course, were the occupants of the Lower Town, and then were those less privileged ones who lived to the south, in the shadow of the Citadel.

Nothing can be more risky than to look at the composition of the Harappan society through the glasses of later-day Indian social structure. But if an attempt, doubtless tentative, is made in that direction, it would appear that the priestly elites of the Citadel may have been the forerunners of the Brāhmaṇas, the middle class agriculturists and merchants of the Lower Town, those of the later-day Vaiṣyas and the out-of-fortification dwellers of Kalibangan and the occupants of the Harappan barracks could, in the course of time, have led to the class which came to be known as the Śūdras. This is a very hypothetical parallelism, but perhaps not altogether unwarranted. And if the analogy is pursued further, it may appear that the Ksatriya class forked out of the agriculturist-*cum*-merchant community as time passed and the need arose. In the Harappan Civilization there is little evidence of weapons of war and thus little to base the existence of a separate Kṣatriya-like class on. Another question which might be posed, but certainly cannot be categorically answered in the present state of our knowledge, is: Did these classes tend to become hereditary or was

there an inter-class up-and-down mobility as well? Much more evidence than that available at present is needed to try answering that question. It is likely that a person continued to work in the same profession as that of his father, as suggested, for example, by the occurrence of bead-manufacturing or shell-working paraphernalia in the successive levels of the same house in certain cases. However, the bigger question will still be: Were all the successive generations tied down to the same profession, such as that of goldsmiths (*svarṇa-kāras*), coppersmiths (*tāmra-kāras*) or potters (*kumbha-kāras*), resulting in a caste-mould? The answer in the present state of our knowledge will evidently be more subjective than objective.

If the aforementioned provisional statements about the stratification of the Harappan society are regarded as standing on slippery grounds, the following discussion on the Harappan polity may have to be described as being 'groundless', since the need for basic documentary evidence is far greater in the latter case than in the former. Nevertheless an attempt can and ought to be made, even though the propositions may have to be qualified with ifs and buts.

At the cost of repetition, one may begin by recalling some of the outstanding features of the Harappan Civilization. These are: (i) division of the larger settlements into a Citadel and a Lower Town, with even more elaborate subdivisions such as at Dholavira; (ii) preplanned and systematic layout of the streets; (iii) ensuring that no encroachments were made on them; (iv) fastidious upkeep of the drainage system wherever it was provided; (v) construction of monumental buildings like the Great Bath and the Assembly Hall at Mohenjo-daro, fire-altar platform at Kalibangan and even a dockyard at Lothal; (vi) organized collection and storage of agricultural surplus in specially built granaries; (vii) uniform systems of weights and measures; (viii) a common monumental script; (ix) use of seals and sealings; and so on.

It would be readily conceded that most of these features would have required a mechanism not only highly competent in initiating them but also powerful enough to enforce their implementation. The question then is: What was the nature of this mechanism? Was the Harappan organization still at the stage of petty chiefdoms based primarily on kinship, or was there a State in the real sense of the term? In the latter case, further questions might be asked, viz. whether there was a single state, i.e. an 'empire' covering the entire known area of the Mature Harappan Civilization — from Sutkagen Dor in Baluchistan in the west to Alamgirpur in Uttar Pradesh in the east, and from Manda in Jammu and Kashmir in the north to Daimabad in Maharashtra in the south. Or were there many small States?

Many scholars, for example Jacobson (1986) and Ratnagar (1991), have made laudable attempts to answer these questions. Thus, according to the former the Harappan Civilization was an 'Early State', whereas the latter would like to call it an 'Empire' (Ratnagar 1991:170). In both these cases, however, inspiration has been drawn, to a considerable extent, from ethnological parallels, particularly from Africa and Meso-America. The present writer, however, would like to assess the possibilities from a different angle.

It is now agreed on almost all hands that the Harappan Civilization was not an import from any other country, but was an indigenous product. This rules out the possibility of a conqueror coming from elsewhere, sweeping over the northwestern part of the subcontinent, establishing his rule and along with it imposing upon the conquered the culture of his home country. Had there been such a 'conquest', we would have certainly had a ready-made case for an 'empire'.

Now, if the foregoing was not the case, let us glance at the cultural, economic, social and political scenario that prevailed in the very same area prior to the emergence of the Mature Harappan Civilization. We know that there did exist in this area a series of interrelated archaeological cultures some of which went back to about the middle of the fourth millennium BC and which seem to have given rise to the Mature Harappan Civilization. (Here we are leaving aside sites like Mehrgarh where there was a much earlier occupation going back to the pre-pottery neolithic times, assignable to early sixth millennium BC.) Some of the more noteworthy sites of these cultures, variously called pre-Harappan/proto-Harappan/Early Harappan, were: Balakot on the coastal belt of Baluchistan, Amri further up in Sindh to the West of the Indus, Kot Diji still further north on the eastern side of the same river (opposite Mohenjo-daro), Jalilpur and Harappa in lower Panjab, Gumla and Rehman Dheri west of the Indus in the Northwest Frontier Province, and Gamanwala in Cholistan, all in Pakistan. (I have left out in this context the pre-Harappan hill cultures of Baluchistan and have confined our discussion to the area where the Mature Harappan Civilization subsequently flourished.) On the Indian side, one notes the site of Kalibangan in Rajasthan where the Period I culture antedated the Mature Harappan one. This culture extended into Haryana, as demonstrated, for example by Banawali, Siswal and the recently excavated site of Kunal. Evidence of this pre-Mature Harappan phase is also available from Panjab and even parts of Jammu and Kashmir.

In Gujarat too we have evidence of a pre-Mature Harappan substratum. For example, Period IA of Surkotada has yielded, besides the Mature Harappan artefacts, elements which point to the existence of an earlier culture in that area. Even Lothal shows elements which may have had an earlier beginning. The radiocarbon dates for Prabhas Patan clearly show the existence of a cultural horizon going back to early third millennium BC. And no less significant are the dates for Padri which take the site prior to even 3000 BC.

The question now to be asked is: What was the stage of political set-up of these antecedent cultures? If we recall some of their salient features, particularly of those in the lower Indus, Ravi and Ghaggar-Sarasvatī basins, we find that the people had already initiated town-planning and fortifying their settlements. Thus, for example, the streets and houses at Kalibangan (Period I) were oriented along the cardinal directions. At least at three places, viz. Kalibangan, Kot Diji and Rehman Dheri, the settlements were fortified. There is a hint that Kohtrash Buthi, another site in Sindh, may have had some sort of fortified arrangement. The bricks had also achieved standardization. For example, at Kalibangan and in the region further to the east (e.g. at Banawali, etc.) the bricks were invariably in the ratio of 3:2:1. In the Kot Diji region this antecedent culture produced bricks in the ratio of 4:2:1, which is what was followed by the Mature Harappans too. The technological level was also in the Copper/Bronze Age. The pottery too had acquired standardization within a given area, and there were some ceramic elements which had acquired inter-regional acceptability. The pottery bore graffiti quite a few of which also occur on the seals during the Mature Indus times (Lal 1992). Then there is evidence of even long-distance trade as indicated by the occurrence of turquoise and lapis lazuli at many of these sites. Rehman Dheri has also yielded a seal, of ivory with animal motifs and a few symbols, which may have been used for sealing trade-commodities. The same must be said of the seals from Kunal.

This then was not a scenario of unorganized village-life. The fortified settlements at Kalibangan, Kot Diji, etc. ought to be recognized, to say the least, as towns. Extensive

survey in Cholistan by Mughal (1990a) has brought to light a large number of settlements which preceded the Mature Harappan Period. While many of these were small or large villages, there is at least one, viz. Gamanwala, which covered an area as large as 27.3 hectares. Unfortunately, it has not been excavated to find out if it too had planned streets and a fortification as in the case of Kalibangan. Nevertheless, its size and the fact that it was an outstanding settlement amidst others of smaller size clearly point to something significant. Would it be too much to postulate that Kalibangan, Gamanwala, Kot Diji and Rehman Dheri commanded the settlements in their respective regions? One hopes that intensive explorations in other regions (some data are already available for lower Sindh as well, cf. Mughal 1990b) will bring to light similar settlement patterns. To extend the argument further, if the aforesaid townships commanded their respective regions, could these have been the 'capitals' of the chiefdoms concerned? Indeed, it cannot altogether be ruled out that seeds of even statehood may have started germinating in them.

Now, if the aforesaid was the probable socio-political scenario during the preceding period, what could be the possibilities for the subsequent Mature Harappan Phase? However, before attempting to answer that, one must ponder over yet another question: How exactly did the Mature Phase emerge? Unfortunately, no satisfactory, acceptable-to-all answer has so far been forthcoming. While there is no doubt that the Mature Harappans were no outsiders but were the 'sons of the soil', under what circumstances did they begin to use a regular script, seals and sealings, weights and measures and how and why did the concept of laying out some of the settlements in two parts, viz. a Citadel and a Lower Town emerge? This emergence was not a process spread over centuries, that is to say first one of the aforementioned items came up and then another and then yet another, and so on. In so far as the available data indicate at present, all these items came into being almost simultaneously. What, indeed, could have been the stimuli? To the present author an explosion in trade, both internal as well external, seems to have been a major contributing factor. (There could no doubt be others as well.) Thus, while we do have some kind of evidence of long-distance trade in the pre-Mature Harappan Phase in the form of import of some turquoise and lapis lazuli, there is little doubt that large-scale long-distance trade with Mesopotamia, Persian Gulf area, southeastern Iran and even Central Asia coincided with the emergence of the Mature Harappan Phase. Indeed, it is a noteworthy point that, as indicated by the radiocarbon dates, even a Harappan trading-colony was established as far away as Shortughai in northeastern Afghanistan about the same time as the emergence of the Mature Indus Civilization itself, viz. between ca. 2600 and 2500 BC.

Most of the noteworthy items which distinguish the Mature Harappan Phase from the preceding one — particularly writing, seals, sealings, weights and measures — are all directly associable with trade and commerce. The two are so much interrelated that it is difficult to separate them in a cause-effect analysis, viz. trade leading to the evolving of a system of writing for the keeping of records, the manufacturing of seals for authenticating exports, and the creation of systems of weights and measures respectively for weighing and measuring the items of export and import. These very facilities, in turn, must have gone a long way in augmenting trade and commerce and ultimately in raising the economic standard of the Harappans.

This rise of the economic graph must have had socio-political repercussions too. For example, it must have given rise to many classes, such as lapidaries, shell-workers, copper-smiths and so on. Then there must have

taken place a race for the control of the resources, their transportation and distribution. In this race some must have run over others and emerged as the economic elites, perhaps dictating to the 'administration' as to what ought to be done and what should be avoided. Whether this control of power was exercised by the chiefs referred to in the context of the pre-Harappan scenario, with yet another class also running the race, it cannot be said with any degree of certainty. Perhaps the power may have been shared, with the chiefs occupying a central position and the trading community acting as a sort of ring around them. In such a *milieu* the religious heads also who, as seen earlier, were very high up in the social hierarchy, must have had their say.

If, and it is a big if, the foregoing was the situation, then we would have to visualize in the Mature Harappan scenario the transformation of the petty chiefdoms into organized states, but still holding their regional identity. In such a case, we may envision a state for Sindh with headquarters at Mohenjo-daro, a state for northern Panjab (Pakistan) with capital at Harappa, another state for southeastern Panjab (Cholistan) having its seat of government at Ganweriwala, a state for northern Rajasthan with capital at Kalibangan, another one for Haryana with capital at Rakhigarhi. Banawali may have looked after the regions to the northwest. In the southern region Dholavira is certain to have swayed over Kutch and even some adjacent parts, whereas Lothal may have been the headquarters for Gujarat and its neighbourhood (fig. 12.1).

Judging from the early historical period (middle of the first millennium BC) of northern India when there were the well known Sixteen States (*Ṣoḍaśa Mahājanapadas*), the envisioned scenario of may states during the protohistoric times as well is not improbable. The early historical *Mahājanapadas* also thrived to a considerable degree, as we know, on trade and commerce, both internal and external, the latter clearly borne out by the famous *Bāverū Jātaka* of the Buddhist tradition.

Another alternative is to visualize one of the antecedent chiefdoms, say of Kot Diji (or of still inadequately explored early Mohenjo-daro) or of Harappa or of Gamanwala or of some yet-unknown place, to have emerged as the leader by having acquired, through trade and commerce, relatively much greater economic strength. As a consequence, it may have overpowered the other smaller states and established an 'empire'. But one must pause for a while and give thought to yet another aspect of the issue, viz. that an empire does need, for maintaining its firm hold, a well-organized army with adequate weapons of offence and defence. Indeed, we have very meagre archaeological evidence in this regard. It has often been argued that the uniformity of the Mature Harappan Civilization over such a vast area could not have been achieved without there having been an 'empire' at its back. Such an argument seems to be nullified by a glaring example of the early historical times. Around the middle of the first millennium BC, there did exist a uniform material culture, represented by the Northern Black Polished Ware, cylindrical weights of chert/jasper, punch-marked and cast copper coins, etc., from as far west as Taxila in Pakistani Panjab to as far east as Tamluk in West Bengal and from the sub-Himalayan region in the north to at least the Narmadā in the south. Yet there was no 'empire' to back it. The first ever empire came into being two hundred years later.

Whether we envision several small states or a single empire, a question which still remains to be answered is: Were there kings in each state or an emperor in the case of an empire? The existence of kings or of an emperor presupposes that the individual concerned would be far above the rest, in his style of living or even in death. In other words, we

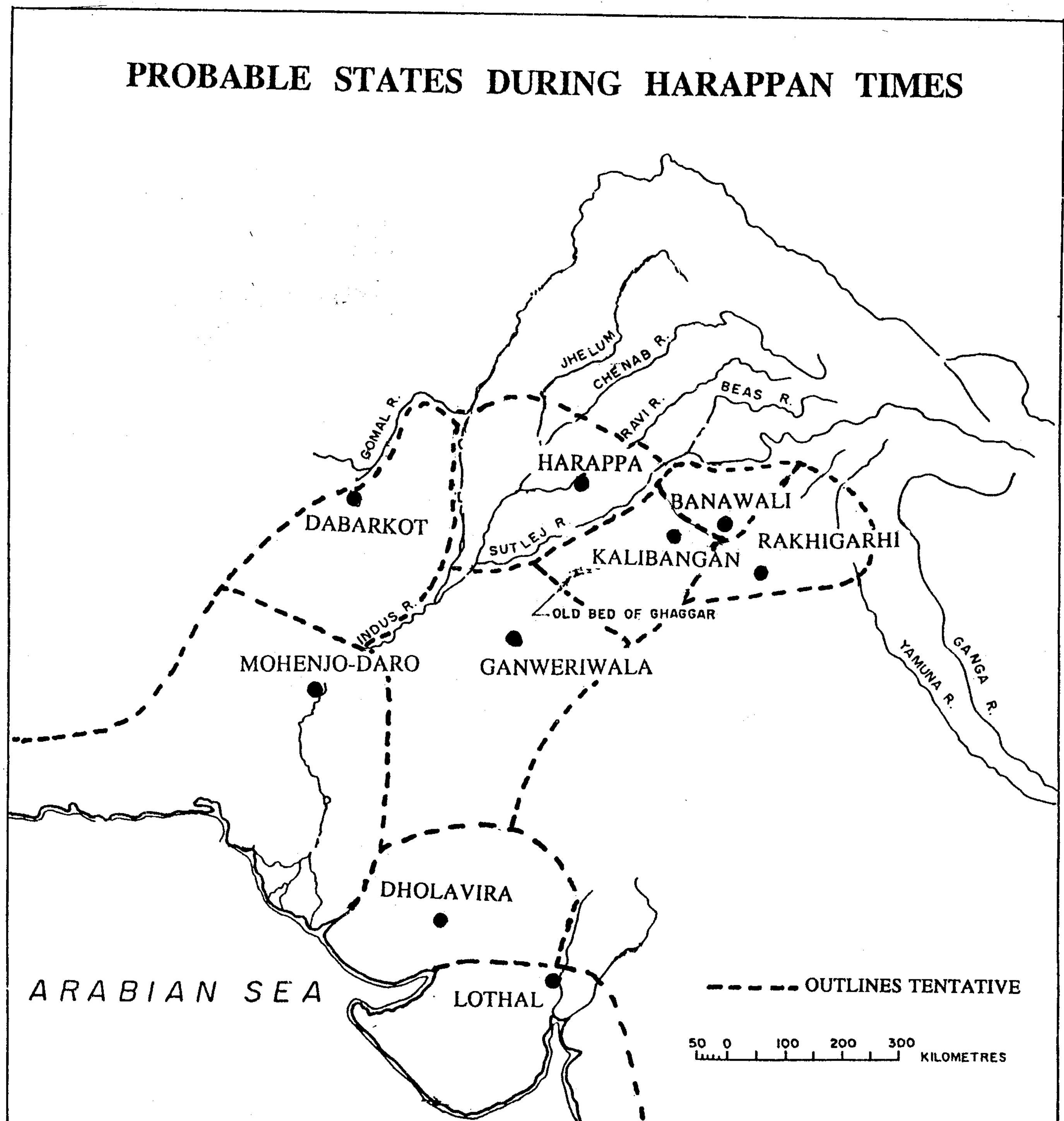

PROBABLE STATES DURING HARAPPAN TIMES
JHELUM
CHENAB R.
RAVI R.
BEAS R.
GOMAL R.
HARAPPA
BANAWALI
DABARKOT
SUTLEJ R.
KALIBANGAN
RAKHIGARHI
INDUS R.
OLD BED OF GHAGGAR
MOHENJO-DARO
GANWERIWALA
YAMUNA R.
GANGA R.
DHOLAVIRA
ARABIAN SEA
LOTHAL
OUTLINES TENTATIVE
50 0 100 200 300 KILOMETRES

Fig. 12.1

expect that he had a big palace to himself, in all likelihood separated from the residences of the common people. The Citadel might be expected to have performed such a function. But that does not seem to have been established, since we do find in these Citadels, to a considerable degree, a ritualistic association which cannot be divorced from a priestly class, unless it is held that the king had also assumed the functions of the chief priest with other priests to assist him.

Attempts have been made to identify as a 'palace' a large-sized pillared structure located within the Citadel at Mohenjo-daro. This building, however, seems to have been more suitable for an Assembly Hall than a palace. Again, the identification of a large building in the Lower Town at Mohenjo-daro may also not be justified, since, though fairly big in size, it is so much mixed up with the other buildings in the area that it does not stand out as a separate entity, as a palace might be expected. Further, one does not expect the 'palace' to have been both in the Citadel as well as in the Lower Town.

There is another aspect which deserves consideration in this context. Had there been kings and emperors one would have also expected 'royal tombs', as we do have in the case of contemporary Western Asia or Egypt. We have reasonably enough data about the burial practices at Harappa, Kalibangan and Lothal, but by no stretch of imagination can any of the graves at these sites be called a royal tomb. The presence of a reed-shroud at Harappa, or the mud-brick lining of some of the graves at Harappa, Kalibangan or Lothal, or the deposition of a few more pots in some of the graves does not obviously entitle them to be called 'royal tombs'.

Now, if kings and emperors cannot be established because of lack of 'palaces' and 'royal tombs', do we have to give up altogether their presence? And if we do discard that hypothesis, what could have been other alternatives? Was the administration organized on oligarchical lines? Further, was it wholly secular? Or did the priestly class also play a role in it and, if so, to what extent? These are questions which must await further archaeological evidence for satisfactory answers. At the theoretical level, however, it may not be out of place to mention that at the beginning of the early historical times in India, i.e. around the middle of the first millennium BC, there did exist a few oligarchies (*gaṇa-saṅghas*) amongst the Sixteen States (*Ṣoḍaśa Mahājanapada*s) referred to earlier.

XIII

CHRONOLOGICAL HORIZON

With the discovery of the Harappan Civilization in the early 1920s it was but natural to ascertain its chronological horizon and to assess where exactly it stood with reference to other contemporary and near-contemporary civilizations of the world. The chief excavator of Mohenjo-daro, John Marshall, the first to deal with this issue, assigned this civilization to a period from 3250 BC to 2750 BC. However, over the years the pendulum has swung back and forth. While some chose to put its beginning around 2500 BC and its end as late as 1500 BC, giving it a lifespan of a thousand years, others believed in a much shorter chronology, placing the civilization within a tight jacket of only 300 years, viz. from 2300 to 2000 BC. The issue, therefore, requires a thorough re-examination of the available evidence.

It is proposed to deal here with three types of evidence, viz. (i) archival, (ii) archaeological, i.e relating to the material data, and (iii) that provided by the radiocarbon method of direct dating.

To take up the first. As mentioned earlier, the cuneiform texts of the time of Sargon of Akkad (ca. 2350 BC) refer to ships from Dilmun, Makkan and Meluhha being berthed at the docks of the capital, Akkad. While the debate about the identification of these countries, continuing over the past several decades, is still inconclusive, there is a tendency to identify Meluhha of these texts with the area covered by the Harappan Civilization. Thus, if the aforesaid identification finally turns out to be valid, it would appear that the Harappan Civilization was in existence in the twentyfourth century BC. References to Meluhha are again found in some later archives. The texts ascribable to the period of the last king of the Third Dynasty of Ur, viz. Ibbi Sin (ca. 2000 BC), refer to the import of various kinds of merchandise from Meluhha. Still later, there are similar references in the texts belonging to the reign of certain Larsa kings, broadly between the mid-twentieth and mid-nineteenth centuries BC. The overall archival evidence would thus indicate that the Meluhhan Civilization, and derivatively the Harappan Civilization, was in full force from the twentyfourth century BC to the nineteenth century BC. This conclusion from the archival evidence, as would have been observed by now, stands on a somewhat slippery ground, because of the not-so-certain identification of Meluhha with the Harappan zone. In this context it may be well worth mentioning that some scholars identify Dilmun, instead of Meluhha, with the Harappan area. Further,

Assyrian texts of ca. 1300 BC leave no doubt that Meluhha was by then identified with Ethiopia and not the Harappan territory.

The second type of evidence deals with the occurrence of certain characteristically Mature Harappan objects in various cultural horizons in West and Central Asia and conversely of West and Central Asian objects at Mature Harappan sites themselves.

As referred to earlier, the first detailed account of the Harappan Civilization is by Marshall (1931) who analyzed the occurrence of the Harappan material at West Asian sites in order to ascertain the chronological horizon of the Harappan Civilization. Out of this material, he says (*ibid.*: 103-04), 'the most important are five seals of characteristic "Indus" pattern discovered on different sites in Elam and Mesopotamia, which in two cases at least must be definitely assigned to the Pre-Sargonic Period and in no case can be referred to a later date than the third millennium BC. ... From the two specimens found at Ur and Kish it has rightly been inferred that the Indus Civilization must go back to an age before 2800 BC. This is incontestable.' Marshall, however, rightly seized on a very pertinent question, viz. from which occupational subperiod of Mohenjo-daro — Late, Intermediate or Early — did these seals go to Ur or Kish? Finding no means of resolving this issue categorically, Marshall himself affirmed: 'Inasmuch, however, as there is at present no way of determining this point, we have assumed provisionally that the Ur and Kish seals belong to the Intermediate Period, and we have suggested accordingly that the occupation of Mohenjo-daro fell approximately between 3250 and 2750 BC.' Proceeding further with his analysis, Marshall (1931: 105) drew attention to seven other categories of objects, motifs, etc. and compared them with 'similar objects from Mesopotamia of the fourth or the first half of the third millennium BC.' 'These examples', he added, 'are enough to show that active intercourse must have been going on between the Indus Valley and Mesopotamia in Pre-Sargonic or Early Sargonic times, and thus afford strong confirmation of the chronological conclusions drawn from the seals.'

It has often been held that Marshall categorically assigned the Harappan Civilization to ca. 3250-2750 BC. But, as would be clear from the foregoing, it was not so. The only fixed point that Marshall brought out was the contact between the Harappan Civilization and the Mesopotamian one during and around the period of Sargon of Akkad. Since in the days of Marshall, the Pre-Sargonic/Sargonic periods were placed much earlier than what they are done now and since for the sake of convenience he took this to be the time of intercourse with the Intermediate Period of Mohenjo-daro, he went in for an overall dating of ca. 3250-2750 BC for the Harappan Civilization.

Soon after Marshall's reports there appeared a very informative article by C.J. Gadd (1932) in which he not only referred to the seals found earlier at Lagash, Umma, Tell Asmar, Kish and Susa but discussed in detail sixteen seals of the Indus style found at Ur. Mortimer Wheeler (1968) reviewed Gadd's material, adding some more found later at West Asian sites. However, as Wheeler himself stated, out of the total number of about thirty seals discussed, only twelve came from a reasonably datable context. Of these, Wheeler's nos. 4, 5 and 6 were Sargonic in date, nos. 3 and 8 were also 'probably Sargonid', nos. 2 and 7 were 'Sargonid or slightly earlier' and at least one (his no. 1) was clearly 'Pre-Sargonid'. This again showed that the contacts between the Harappans and Mesopotamians had commenced prior to the times of Sargon (ca. 2350 BC); how much earlier, it can only be guessed.

Besides seals, there are other categories of objects, such as etched carnelian beads,

gold disc-beads with axial perforation, weights, etc. which also have been found in more or less datable contexts at West Asian sites. Summing up his evidence, Wheeler (1968: 125) said: '... it may now be postulated that the nuclear cities of the Indus Civilization were founded some time before 2400 BC, and that they endured in same shape to the eighteenth century BC; always with the reservation that these brackets cannot be expected to fit closely and mechanically to Indus towns and villages of all sizes and in all locations.'

In this context it may be well worthwhile to quote from a recent publication by Dilip K. Chakrabarti (1990: 109-10) who has very succinctly put together the occurrence of Harappan objects at various Mesopotamian sites:

'PRE-SARGONIC PHASE

Ur: (#1) One rectangular seal from Private Grave 791 at Ur; (#2) one dice; (#3) long barrel-cylinder carnelian bead; (#4) etched carnelian beads.

Kish: (#1) One long barrel-cylinder carnelian bead; (#2) etched carnelian beads; (#3) ladles and lamps of conch shell.

Tell Agrab: (#1) One steatite/chlorite vase fragment; (#2) one painted pot.

Al Hiba: One dice.

Abu Salabikh: An etched carnelian bead.

AKKADIAN PHASE

Ur: (#1) A seal; (#2) etched carnelian beads; (#3) long barrel-cylinder carnelian beads.

Kish: (#1) A typical Indus seal; (#2) etched carnelian beads; (#3) long barrel-cylinder carnelian beads.

Tell Asmar: (#1) A cylinder seal showing Indus influence; (#2) an alabaster square stamp seal; (#3) etched carnelian beads.

Tepe Gawra: (#1) A terracotta rectangular stamp seal with concentric designs.;

(#2) a dice.

POST-AKKADIAN PHASE

Ur: (#1) A seal; (#2) long barrel-cylinder carnelian beads; (#3) etched carnelian beads.

Kish: An Indus seal earlier than the eighteenth century BC.

Nippur: (#1) Etched carnelian beads; (#2) ithyphallic terracottas.

Ashur: Etched carnelian bead.

Lagash: An Indus seal.

KASSITE PHASE

Nippur: An Indus seal.'

Another way of ascertaining the chronological horizon of the Harappan Civilization would be to examine the occurrence of closely datable West Asian objects in different levels at Harappan sites. However, as would be noted below, this does not help very much since the West Asian objects themselves have a very wide range of time in their region(s) of origin. Thus, for example, the occurrence in the early levels of Mohenjo-daro of a fragment of a vase of chlorite schist carved with interwoven basket pattern — a type of West Asian origin — would have been of great help in dating the Mohenjo-daro levels concerned, had the type been assignable to a closely datable short span of time in West Asia itself. Though the type occurs as early as the Early Dynastic times at Ur, Kish, Lagash, etc. and Yahya IVB, it also continued pretty late. Likewise, spiral-headed pins found at Harappan sites like Mohenjo-daro, Chanhu-daro, Manda, etc. go back to the fourth millennium BC on the one hand (e.g. at Sialk) but continue as late as the second half of the second millennium BC in Italy.

When Marshall and Wheeler wrote, not much was known about India's contacts with

the Persian Gulf. Now, however, we have reasonably good evidence from Bahrain, Failaka and Oman. From Ras al-Qala in Bahrain comes a Persian Gulf style seal, bearing two signs of the Harappan script. The stratum is ascribable to Akkadian times. Another seal is assignable to Isin-Larsa context. However, two seals found in Failaka are of Kassite date. Far south at Hili in the Oman peninsula, have been found pedestalled bowls with typical fingernail designs which at once remind one of similar Harappan vessels. At Hili these go back to ca. 2500 BC. One thus sees that like the Mesopotamian contacts, those with the Persian Gulf also point to a date-range from about the middle of the third millennium BC to somewhere in the first half of the second.

The evidence of Indo-Iranian intercourse also has a similar tale. For example, the etched carnelian beads at Susa are assignable to an Early Dynastic III-Akkadian context, while the seals from the same site are ascribable to an Akkadian-Post-Akkadian horizon. The Shahdad and Tepe Yahya IVA contacts too would give to the Harappan Civilization an anchorage of the same vintage. Of special interest is the occurrence in Tepe Yahya IVA of a potsherd stamped with a seal with Indus signs. Likewise, the Hissar IIIC evidence should not be later than the last quarter of the third millennium BC. Maybe the Luristan contacts take the story slightly later. All told, however, the time-range in this case too would broadly be between the middle of the third millennium BC and the first quarter of the second.

Some light on the chronological issue is also thrown by Central Asian evidence, though, it must be admitted, it is rather meagre. In this context may be cited etched carnelian beads, segmented faience beads, incised ivory sticks and dice, perforated pottery vessels and seals found variously at Altyn-Depe, Namazga and Khapuz. Of these, relatively greater significance may be attached to the seals since these are more specific. The seals are three in number and all come from Altyn-Depe. One of them, made in alabaster, bears the swastika motif and can safely be compared with similar seals from Harappan sites. The second seal, possibly of soapstone (or alabaster?) bears two typical Indus signs. It was found in the latest building level at Altyn-Depe ascribable to ca. 2500-2200 BC. The third piece, made of silver, may have been either a seal or a pendant. It depicts an imaginary three-headed animal — a concept often met with on the Harappan seals. Put together, the Central Asian evidence shows that this contact may have taken place between 2500 and 2200 BC. Of course, the earlier and later limits of the Harappan Civilization itself cannot be defined on the basis of this limited evidence.

We may now pass on to the radiocarbon method which provides direct dating of the Harappan sites themselves. However, this method, too, has its own drawbacks. For example, charcoal on the basis of which the date is determined, may have come from the core of a long-lived tree, which would give an earlier date to the stratum wherein the charcoal has been found. On the other hand, contamination of the sample with modern rootlets, and this process may have taken place in antiquity as well, or through seepage of water intermixed with later carbonaceous material, and the like, would result in a younger date. Besides, even the basic criteria for dating have been undergoing changes. Thus, for example, the originally assigned half-life value of 5568 years had to be revised upwards to 5730. Then came the calibrations, each one resulting in pushing the dates earlier. The most recent calibration, which is used here, is the one distributed by M. Stuiver (Stuiver and Reimer 1986) at the Quaternary Isotope Laboratory, University of Washington. However, in spite of the foregoing factors, the radiocarbon method is decidedly of greater help in

arriving at a relatively better focus than that obtained by a mere comparative study of the contacts of the Harappan Civilization with civilizations in Mesopotamia, Persian Gulf, Iran and Central Asia.

The radiocarbon dates given in this paper are drawn from Possehl (1990). In the Preface, he states: 'The 5568 BP date on the list is reproduced as it was published. The 5730 BC date was calculated by multiplying the 5568 date by 1.03 and rounding off to the nearest five years. The same calculation was performed on the standard deviation for the 5730 date. The date in the column headed "Calibration" has been taken from the MASCA calibration list to be published in Robert Ehrich (editor), *Chronologies in Old World Archaeology*, University of Chicago Press [since published]. The date under the column "Calib-2" has been taken from the 1.3 revision of the computer program "Calib" distributed by M. Stuiver at the Quaternary Isotope Laboratory, University of Washington.'

Let us begin with the key-site of Mohenjo-daro. For the upper levels of the Mature Harappan Phase we have the following six dates: 2556, 2546, 2493 BC (P-1177); 2460 BC (P-1179); 2297 BC (P-1180); 2279, 2231, 2210 BC (P-1178 A); 2279, 2232, 2209 BC (P-1176); and 2133, 2064, 2048 BC (P-1182 A). This would mean that the upper levels go back to the twenty-sixth-twentyfifth centuries BC, though this may seem to be somewhat unusual. However, the still unfathomed levels of the site may take it back much earlier, throwing, in the process, the much-awaited light on the emergence of the Mature Phase (Shaffer 1992). Since for the post-Urban Jhukar(?) levels we have a date of 1961 BC (TF-75), it is evident that over here the Mature Phase had faded out around 2000 BC.

Jhukar, another site in Sindh, has yielded 3371 BC (P-2476) for the Mature Harappan Phase. However, the date being too early for the Mature Phase may be discarded.

In southern Sindh, the site of Balakot has given six dates, of which four belong to the pre-Harappan (Balakotian) Culture and two to the Urban, i.e Mature Harappan. These latter two are 2584 BC (HAR-1992) and 2455, 2416, 2405 BC (HAR-1993) respectively.

Allahdino, another site more or less in the same geographical region as Balakot, offers the following radiocarbon dates for the Urban, Harappan Period: 2464 BC (P-2296); 2315 BC (P-2237); and 2195, 2156, 2147 BC (P-2295).

Only one radiocarbon date is available for the Mature Harappan Period of Nausharo, a site located near the Bolan Pass. It is 2580 BC (BETA-18845) and falls in line with those from Mohenjo-daro and Balakot.

We may now proceed northwards and take up the key-site of Harappa in Panjab. For obvious reasons, there are no radiocarbon dates available from the excavations carried out by Vats and Wheeler at this site. However, the recent work by George F. Dales and J. M. Kenoyer has produced 33 dates for the site (Kenoyer 1991). These relate variously to: Periods 1 and 2 which are pre-Mature Harappan, i.e. Early Harappan according to another terminology; Period 2/3, a transitional stage from the pre-Mature to the Mature Harappan; and Period 3, Mature Harappan. No radiocarbon dates have come to the notice of the writer as regards the post-Mature Harappan period (represented by Cemetery H).

Of the 23 dates available for the Mature Harappan Period (Period 3), four come from Mound AB, eleven from the Northwestern Corner of Mound E and eight from the Southern Slope of the same Mound E. All these dates are given in Table 1.

Out of the four dates from Mound AB, 2913 BC seems to be rather early. Likewise,

TABLE 1: Harappa Dates Arranged Stratigraphically from Latest to Earliest

(The dates are arranged according to the specific stratigraphy in each area of the site. Mound AB dates can only be correlated with Mound E dates on the basis of general ceramic comparisons, but they are approximately equal to the Period 3 dates from Mound E. Dates marked * are from charcoal inside hearths or kilns.)

PROVENIENCE	5568 BP	5730 BC	CALIB BC
Mound AB, Period 3			
WIS-2043	3770+/-70	1930+/-70	2268,2263,2203,2147,2146
WIS-2144	3720+/-100	1880+/-105	2138
WIS-2075	3830+/-60	1995+/-60	2299
WIS-2140	4290+/-70	2470+/-70	2913
Mound E, Period 3			
Northwestern Corner			
WIS-2139*	3820+/-60	1985+/-60	2288
WIS-2053	3920+/-210	2090+/-215	2469
WIS-2074*	3700+/-60	1861+/-60	2133,2067,2047
WIS-2143*	3825+/-60	1990+/-60	2293
WIS-2145	4020+/-60	2190+/-60	2573,2535,2506
WIS-2142	4135+/-65	2410+/-65	2863,2812,2742,2726, 2696,2677,2666
WIS-2141	3920+/-70	2090+/-70	2462
QL-4378	3850+/-50	2015+/-50	2334
QL-4374	3800+/-50	1965+/-50	2278,2234,2209
BETA-33874	4540+/-180	2725+/-185	3338,3213,3203
QL-4376*	3810+/-50	1975+/-50	2283
Southern Slope			
WIS-2217	3860+/-60	2026+/-60	2343
WIS-2219*	3910+/-65	2077+/-65	2459
QL-4484*	3730+/-30	1892+/-30	2140
QL-4483*	3784+/-30	1947+/-30	2270,2203
WIS-2220*	3815+/-60	1979+/-60	2286
WIS-2221*	3940+/-120	2108+/-120	2466
QL-4488	3750+/-40	1912+/-40	2191,2161,2145
QL-4487	3816+/-25	1980+/-25	2286

3338/3213/3203 from Mound E may also have to be discounted. The consensus of the remaining dates would indicate that the Mature Harappan Phase may have begun around 2600 BC or so. The latest date available from Mound AB is 2138 BC and that from Mound E is 2133/2067/2047 BC. This might suggest that the Mature Phase came to an end around 2000 BC. In this context, the excavator has himself stated (Kenoyer 1991: 39-40): 'However, at Harappa there are between one and two metres of Period 3 occupation levels above the uppermost dated levels, which would suggest that Period 3 continues to 1900 BC, if not later.'

In northwest Pakistan lies the site of Hissam Dheri which has yielded a single date, viz. 2138 BC (WIS-1703), for the Mature Harappan Period. There are no radiocarbon dates for any other Mature Harappan site in that region.

The now-dried up valley of the Ghaggar and its tributaries has a large number of Mature Harappan sites. Of these, Kalibangan has been subjected to fairly extensive tests for radiocarbon dates. There are 10 for the pre-Harappan/Early Harappan levels and 25 for the Mature Harappan. Out of these 25 dates, 4, 9 and 12 are assignable respectively to the early, middle and late levels. The details are presented in Table 2.

Of the foregoing dates, we may easily write off AD 72. However, even otherwise, the remaining dates show how careful one has to be in assessing them. For example, while the early levels give a date (TF-160) in the twentysixth century BC the late levels also do the same (TF-942). As for the twentyfifth century BC, the dates come from all the levels: Early, two (TF-607 and TF-163); Middle, three (TF-608, TF-145 and TF-147); and Late, three (TF-25, TF-153, and P-481). However, in spite of these *prima facie* inconsistencies, the dates do help us in determining the overall time-range of the Mature Harappan settlement at Kalibangan. It seems to have commenced some time in the twentysixth century BC and to have crossed the 2000 BC mark, as shown by the four dates from the late levels, viz. 1968 BC (TF-946); 1880/1830/1829 BC (TF-143); 1521 BC (TF-244); and 1391/1334/1327 (TF-138). Of these post-2000 BC dates, for the time being, we have to suspend comment on 1521 BC and 1391 BC, since these are isolated from the other two dates by a very wide and sudden gap of nearly 500 years.

In summary, therefore, the Mature Harappan Civilization at Kalibangan may be dated from ca. 2550 BC to ca. 2000 BC, with a margin of about 50 years on the earlier side and of about 100 years on the later. Thus, ca. 2600-1900 BC may be treated as an all-inclusive date for Kalibangan.

Banawali has also been extensively excavated. Unfortunately, we do not have a large number of radiocarbon dates representing the various levels of this site. Thus, we have to be content with only four dates, all for the Mature Harappan Phase. (There are no dates for the preceding pre-Harappan levels.) The four dates, viz. 2283 BC (PRL-205); 2278/2234/2209 BC (PRL-203); 1523 BC (PRL-204); and 1406 BC (PRL-207), would indicate that Banawali may have been a late contemporary of Kalibangan and may have even outlived it. In this context it may be well worth mentioning that there is also a post-Mature Harappan occupation at Banawali.

Balu is yet another Harappan Culture site in the same general geographic zone. It is relatively small, both vertically and horizontally. It has yielded two dates, viz. 1673 BC (PRL-989) and 407 BC (PRL-988). For obvious reasons, the latter has to be discarded, while the former would indicate that the Harappan Civilization may have struggled on in this region up to the seventeenth century BC.

Mitathal has given three dates, one each for Periods I (2288 BC, PRL-290); IIA (1961 BC,

TABLE 2: Mature Harappan Radiocarbon Dates from Kalibangan

Sample no.	5568 BP	5730 BC	CALIB-1 BC	CALIB-2 BC
Late Phase				
TF-599	1930+/-100	40+/-105	35 BC-AD 95	AD 72
TF-138	3075+/-100	1215+/-105	1540-1240	1391,1334,1327
TF-244	3250+/-90	1400+/-95	1695-1410	1521
TF-143	3510+/-110	1665+/-115	2000-1700	1880,1830,1829
TF-946	3605+/-100	1765+/-105	2170-1865	1968
TF-149	3675+/-140	1835+/-145	2325-1880	2118,2083,2041
TF-150	3740+/-100	1900+/-105	2340-1980	2181,2166,2142
TF-605	3810+/-105	1975+/-110	2415-2135	2283
P-481	3879+/-72	2045+/-75	2425-2300	2453,2424,2398
TF-153	3910+/-110	2075+/-115	2635-2300	2459
TF-25	3930+/-110	2100+/-115	2645-2310	2464
TF-942	4055+/-110	2225+/-115	2875-2530	2586
Middle Phase				
TF-152	3615+/-85	1775+/-90	2180-1870	2014,2006,1976
TF-142	3635+/-100	1795+/-105	2190-1880	2030,1990
TF-141	3705+/-110	1865+/-115	2320-1955	2134,2059,2048
TF-139	3775+/-100	1940+/-105	2410-2105	2200
TF-151	3800+/-100	1965+/-105	2415-2130	2278,2234,2209
TF-948	3815+/-100	1980+/-105	2420-2145	2286
TF-147	3865+/-100	2030+/-105	2440-2180	2450,2348
TF-145	3895+/-100	2060+/-105	2560-2295	2456,2412,2408
TF-608	3910+/-110	2075+/-115	2635-2300	2459
Early Phase				
TF-947	3765+/-85	1930+/-90	2405-2020	2197,2154,2148
TF-163	3910+/-100	2075+/-105	2635-2300	2459
TF-607	3930+/-120	2100+/-125	2645-2310	2464
TF-160	4060+/-100	2230+/-105	2875-2530	2587

PRL-291); and IIB (2883/2796/2784 BC, PRL-292). While Periods I and IIA have been labelled by Possehl (1990: 36) as 'Urban', IIB has been called 'Panjab' Post-Urban Phase. In view of its stratigraphic position, sample PRL-292 will have to be discounted.

Alamgirpur and Hulas, both falling in the upper part of the Yamunā-Gaṅgā *Doāb*, are important inasmuch as they show that the Harappan Civilization, in its eastward march, had crossed the Yamunā too. While there are no radiocarbon dates for the former site, the latter has given two, viz. 3318/3231/3181/3159/3139 BC (PRL-1032); and 2468 BC (PRL-1031). On the basis of the data from other Mature Harappan sites, the former date is clearly too early, but the latter seems to be in order. While one has to await publication of the full report on Hulas, it may be added the present writer himself picked up a clay sealing with typical Harappan inscription from amongst the finds at the site.

We may now turn our attention to the southern sites of the Harappan Civilization, located in Gujarat. Within this State, there are three major geographical units, viz. Kutch, consisting of a series of islands surrounded by the Rann; the central plateau of Saurashtra, constituting the bulk of the peninsula; and the riverine plains to the east of the latter. In the Kutch area two major excavations have been carried out, viz. those at Surkotada and Dholavira (still continuing). At the time of writing we have radiocarbon dates only from the former site. In the central Saurashtra region a large number of dates are available from Rojdi. Also, two dates are available for Kuntasi, which is thought to have functioned as a port in northeastern Saurashtra. In the eastern riverine area, Lothal has given a reasonable number of dates, though not as many as those from Rojdi.

Surkotada has a continuous Mature Harappan occupation, though some minor extraneous elements in the form of pottery are also present. The excavator has subdivided the entire occupational strata into three subperiods, called IA, IB and IC. The radiocarbon dates for Surkotada are given in Table 3. However, wherever there is any discrepancy in the subperiods given by Possehl and those in the excavator's Report (Joshi 1990), the latter has been reported. TF-1301 (2315 BC) given in Possehl's Table does not find a mention in Joshi's Report. It is, therefore, omitted here.

While 2865/2810, etc. BC (PRL-85) may be on the earlier side, 2455/2416, etc. BC (TF-1305) seem to be in order. It may well mean that Surkotada was in existence in the twenty-fifth century BC. As for the end of the occupation at Surkotada, there are four radiocarbon dates for Subperiod IC, three of which range around 2000 BC and one goes into the nineteenth century BC. Thus, the occupation at Surkotada may have to be dated from the twentyfifth to nineteenth century BC.

Before we discuss the radiocarbon dates from Rojdi, a word seems to be called for regarding the cultural contents of the site. On the basis of the pottery the entire occupation has been divided into three phases, viz. A,B and C. The pottery of the earliest phase, A, is broadly comparable to that of Rangpur IIA. However, it must be noted that the 'distinctive Indus painting style is absent' (Possehl and Rawal 1989: 12), as are many of the typical Harappan pottery forms. Furthermore, Rojdi has not yielded any seal, though one inscribed potsherd does occur. Town-planning and monumental architecture are also conspicuously absent. All told, there is little to say that it was a Mature Harappan urban site, like Dholavira, Lothal, etc. The cultural equipment of Rojdi is repeated at many sites in the region and Possehl has given to this complex a new name, 'Sorath Harappan'. The chronological contemporaneity of this Sorath Harappan with the truly Urban Harappan sites, however, is clearly indicated by

TABLE 3: Mature Harappan Radiocarbon Dates from Surkotada

Sample no.	5568 BP	5730 BC	CALIB-1 BC	CALIB-2 BC
Phase IC				
TF-1307	3510+/-105	1665+/-110	2000-1700	1880,1830,1829
TF-1294	3620+/-95	1780+/-100	2180-1870	2018,2002,1980
TF-1311	3625+/-90	1785+/-95	2185-1875	2023,1998,1983
TF-1297	3635+/-95	1795+/-100	2190-1880	2030,1990
Phase IB				
TF-1295	3780+/-95	1945+/-100	2410-2105	2202
Phase IA				
TF-1304/9	3645+/-90	1805+/-95	2195-1885	2033
TF-1310	3810+/-95	1975+/-100	2415-2135	2283
TF-1305	3890+/-95	2055+/-100	2555-2285	2455,2416,2405
PRL-85	4140+/-130	2315+/-135	2940-2540	2865,2810,2747, 2725,2697, 2674, 2668

the radiocarbon dates from Rojdi as given in Table 4.

There is a truly Mature Harappan site in the northeastern part of Saurashtra, viz. Kuntasi. It seems to have functioned as a small industrial station manufacturing beads, bangles, etc. and exporting them as well. Two occupational periods have been identified: I, Mature Harappan; and II, Late Harappan. There are two radiocarbon dates for the former, viz. 1876+/-170 BC and 1800+/-140 BC. These are uncalibrated. On calibration it would mean that the settlement at Kuntasi may have commenced around 2200 BC.

Lothal, an important trading-station not far from the Gulf of Cambay, has given nine dates, six in the first series and three in the second. Both the series are given in Table 5. The subperiods given here are according to Rao (1979: 39).

While the date of 2461 BC for Subperiod I seems to be in order, the date for Subperiod IIA, viz. 1735/1717 BC, is simply out of context, considering the dates for Subperiods IIIB, IVA and VA. The same can be said about the date for Subperiod IIB, viz. 2182/2166/2142 BC. There are three dates for Sub-period IIIB, viz. 2328 BC, 2315 BC, and 2299 BC which are in keeping with the dates for Subperiod I on the one hand and Subperiods IVA and VA on the other. The two dates, viz. 2134/2059/2048 BC and 2034 BC, for Subperiod VA are significant since this subperiod marks the time when the Mature Phase of the Harappa Culture had come to an end, and its devolution had star-

TABLE 4: 'Sorath Harappan' Radiocarbon Dates from Rojdi

Sample no.	5568 BP	5730 BC	CALIB-1 BC	CALIB-2 BC
Subperiod C				
PRL-1084 *	3700+/-145	1860+/-150	2350-1890	2133,2067,2047
Subperiod B				
PRL-1282	3470+/-140	1620+/-145	2000-1665	1866,1846,1772
PRL-1281	3520+/-110	1680+/-115	2015-1710	1883
TF-199	3590+/-100	1750+/-105	2150-1850	1947
PRL-1088 *	3767+/-125	1930+/-130	2420-1970	2197,2153,2149
TF-200	3810+/-110	1975+/-115	2415-2135	2283
PRL-1083 *	3875+/-125	2040+/-130	2640-2160	2452,2427, 2395, 2374, 2366
Subperiod A				
PRL-1285	3740+/-140	1900+/-145	2410-1945	2181,2166,2142
PRL-1284	3810+/-100	1980+/-105	2415-2135	2283
PRL-1089	3865+/-115	2030+/-120	2440-2180	2450,2348
PRL-1093	3920+/-110	2090+/-115	2640-2305	2462
PRL-1283	3980+/-100	2140+/-105	2660-2385	2554,2548,2491
PRL-1087	4010+/-110	2180+/-115	2675-2515	2569,2538,2503
PRL-1085	4020+/-105	2190+/-110	2680-2515 BC	2573,2535,2506

(*) Stratigaphic horizon uncertain

ted taking place. In summary, therefore, the Mature Phase of the Harappa Culture at Lothal may broadly be dated from ca. 2500 BC to ca. 2000 BC.

While the discovery of a Mature Harappan site, Shortughai, in a far off region, viz. northeastern Afghanistan, was a most welcome event in itself, it did spring a great surprise inasmuch as there were no intermediary sites between that region and the main area of the Harappan Civilization in Sindh, Panjab, Haryana, Rajasthan, Gujarat, etc. The explanation that Shortughai was a Harappan colony where the Harappans exploited various raw materials, particularly lapis lazuli, seems to be a reasonable one, but future fieldwork ought to be directed to locate missing links.

The occupation at Shortughai has been divided into various periods, of which the lowest, I, is clearly Mature Harappan. Periods II and III are post-Mature Harappan,

TABLE 5: Mature Harappan Radiocarbon Dates from Lothal

Sample no.	5568 BP	5730 BC	CALIB-1 BC	CALIB-2 BC
First Series:				
Subperiod VA (post-Mature Harappan)				
TF-19	3650+/-135	1810+/-140	2315-1865	2034
TF-23	3705+/-105	1865+/-110	2320-1955	2134,2059,2048
Subperiod IV A				
TF-29	3740+/-110	1900+/-115	2340-1980	2181,2166,2142
Subperiod IIIB				
TF-26	3830+/-120	1995+/-125	2425-2155	2299
TF-27	3840+/-110	2005+/-115	2425-2160	2315
TF-22	3845+/-110	2010+/-115	2430-2165	2328
Second Series:				
Subperiod IIB (IIA in Possehl 1990: 32)				
TF-133	3740+/-110	1900+/-115	2340-1980	2182,2166,2142
Subperiod IIA				
TF-135	3405+/-125	1555+/-130	1950-1570	1735,1717
Subperiod I (IA in Possehl 1990: 32)				
TF-136	3915+/-130	2080+/-135	2655-2185	2461

while Period IV belongs to Bishkent Culture, fairly well spread in that geographical region.

Of the seventeen radiocarbon dates available for Shortughai, five belong to the Mature Harappan Period; two and four respectively to Periods II and III, which are post-Mature Harappan, and three to the Bishkent Culture. There are three dates whose stratigraphical horizon is in doubt (Possehl 1990: 53). Since we are primarily concerned here with Period I, we reproduce in Table 6 the five clear dates from it. Also given are: a date which is thought to belong to Period I, but its stratigraphy has been doubted (NY-429); and two clear dates from Period II, which mark the time by which the Mature Harappan had ceased to be 'Mature'.

TABLE 6: Radiocarbon Dates from Shortughai

Sample no.	5568 BP	5730 BC	CALIB-1 BC	CALIB-2 BC
Period II (Post-Mature Harappan)				
MC-2445	3890+/-80	2055+/-80	2555-2285	2455,2416,2405
MC-1728	3975+/-90	2145+/-95	2660-2385	2551,2549,2489
Period I (Mature Harappan)				
MC-2447	3725+/-80	1885+/-80	2330-1975	2139
MC-1726	3875+/-95	2040+/-100	2550-2185	2542,2427,2395,2374,2366
MC-2446	3890+/-80	2055+/-80	2555-2285	2455,2416,2405
NY-425	4040+/-100	2210+/-105	2865-2525	2580
NY-430	4075+/-95	2245+/-100	2835-2535	2651,2649,2610
NY-429	4395+/-160	2575+/-165	3365-2895	3033,2957,2946

Note: In the column 'Cultural Association', Possehl (1990: 52) records the following regarding NY-429: 'Period II? (possibly I) Mature or Post-Urban Harappan'. Period II, as already stated, is post-Mature Harappan.

Even if we set aside the date 3033/2957/2946 BC (NY-429) as being too early, the five dates for Period I, viz. 2651/2649/2610 BC (NY-430), 2580 BC (NY-425), 2455/2416/2405 BC (MC-2446), 2542/2427/2395/2374/2366 BC (MC-1726) and 2139 BC (MC-2447) clearly indicate that the Mature Harappa Culture was there at Shortughai around 2600 BC. In fact, the date 2139 BC (MC-2447) seems to be a solitary late date and may have ultimately to be discounted, more so because of the two dates, viz.2551/2549/2489 BC (MC-1728) and 2455/2416/2405 BC (MC-2445), for the subsequent Period II.

The summary of radiocarbon dates from the various sites discussed above may now be presented in the form of a Chart (fig. 13.1).

Out of the seventeen sites plotted on the Chart, only three, viz. Jhukar, Harappa and Hulas record one date each prior to 3000 BC. Harappa and Shortughai have each a date in the thirtieth century BC. Likewise, there are only stray dates pertaining to the period from the twentyninth to twentyseventh centuries BC. However, when it comes to the twentysixth and twentyfifth centuries BC, most of the sites fall in line. This would mean that the Mature Stage of the Harappan Civilization had positively come into being in the twentysixth century BC. The explosion seems to have been so eventful that within a century or so it enveloped the entire area within which the remains of the Mature Stage have been encountered. Even a far-off site like Shortughai (in Afghanistan) was no exception. Theories have been advanced that the northeastern and the southeastern zones represent a 'sloping horizon', implying that these areas received the Mature Phase much later. Such a stand is not supported by the radiocarbon

Radiocarbon Dates for the Mature Phase of the Indus Valley Civilization

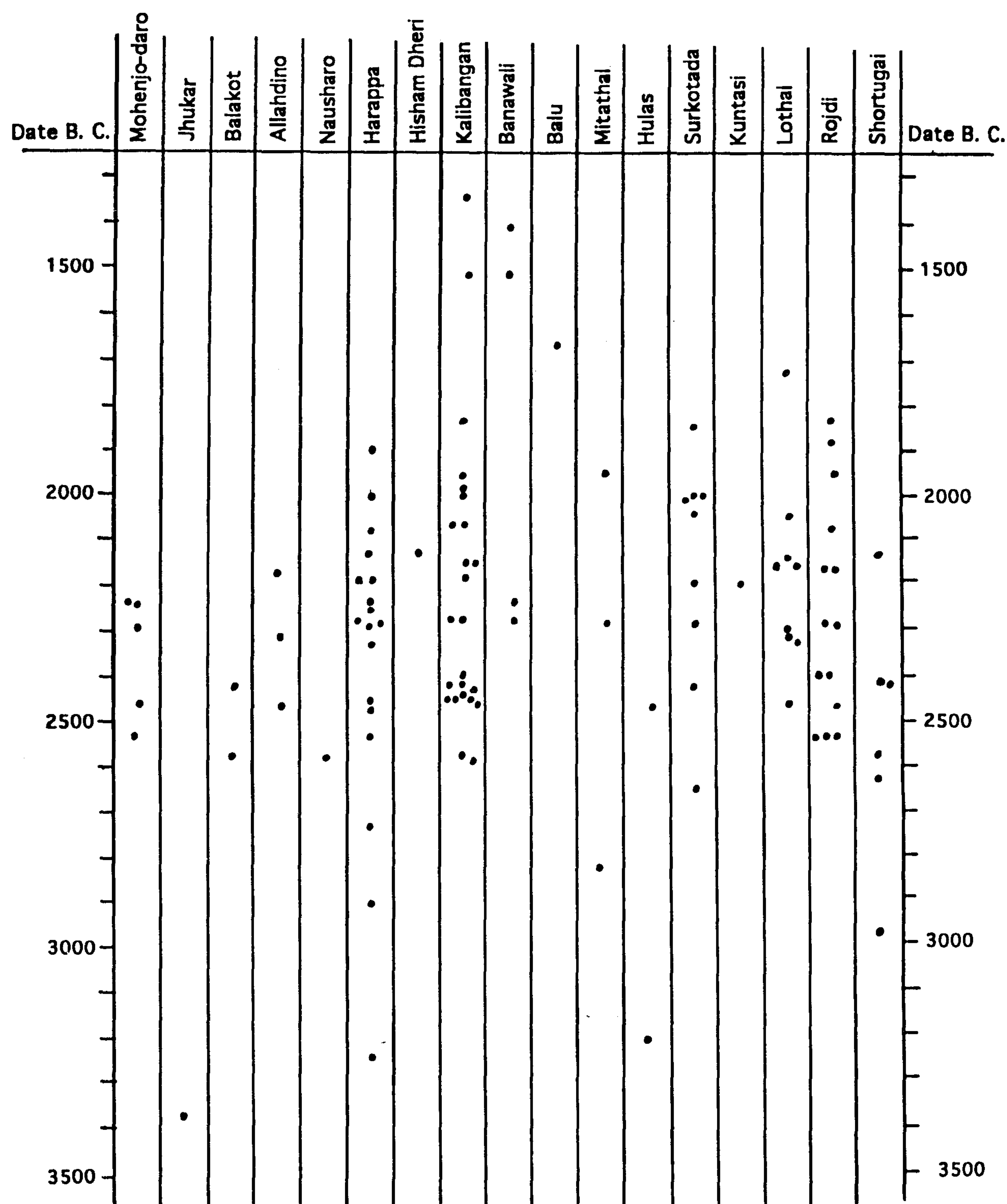


Fig. 13.1

dates, nor by the material contents of the key-sites in these regions. At the same time, it is quite understandable that a few individual settlements in these regions may have come up a bit later.

How late did the Mature Harappan Civilization continue? The evidence from many of the sites seems to suggest that it did cross the 2000-BC mark and may have struggled on for a century or two at a few sites. Continuation beyond that is very meekly voted by a couple of sites and we may have to ignore the same, until and unless supporting data are yielded by at least a few more sites. The idea that the Harappan Civilization continued as late as 1500 BC, advanced by certain scholars seems to have been motivated by the fact that they had two other theories to fit into their scheme, viz. (i) the 'entry' of the Aryans into India around that time; and (ii) the destruction of the Harappan Civilization by the 'invading' Aryans. Scholars, by and large, do not subscribe to either of these views.

In the present state of our knowledge, the period from ca. 2600 BC to ca. 2000 BC may be regarded as a reasonable span for the Mature (Urban) Phase of the Harappan Civilization, with a possible but a limited extension beyond the latter date. As a corollary, it knocks out the thesis that the Mature Phase was only a short-lived affair, between ca. 2300 BC and 2000 BC.

From hindsight, it may now be also observed that even the span arrived at on the basis of Indo-Mesopotamian trade-relations, viz. from the pre-Sargonic times (i.e. pre-2350 BC, maybe going back to the Early Dynastic III times in the twentyfifth century BC) to the Larsa Period (ca. early twentieth to mid-nineteenth century BC) was not very much away from the mark. For obvious reasons, trade-contacts with Mesopotamia could not have been started by the Mature Harappans right from their Day 1; hence the brief time-lag. As stated earlier, the Kassite (ca. 1500 BC) evidence from Ur is very doubtful since the uninscribed circular seal with button back, in itself not a characteristic Harappan specimen, came from 'Upper rubbish, Kassite (?) level'. And if Meluhha is identified as the Indus valley (though, as already stated, the evidence is not a clinching one), even then the archival references to Meluhhan trade, from the time of Sargon of Akkad (ca. 2350 BC) to that of Larsa kings (ca. 1932-1866 BC) do fit well into the chronological framework arrived at by the radiocarbon analysis.

ADDENDA

As mentioned in the Preface, what is contained in this chapter was written in 1992 as a paper captioned 'The Chronological Horizon of the Mature Indus Civilization', and published in *From Sumer to Meluhha*, a volume dedicated to the memory of Professor George F. Dales, Jr. (Ed. Jonathan Mark Kenoyer, Wisconsin Archaeological Reports, Volume 3, 1994.) Since then sixteen more radiocarbon dates have become available in respect of Harappa (Meadow *et al.* in press) and the same are given in Table 7.

Out of these sixteen dates, all but one have been assigned to Period 3, which is Mature Harappan. (Sample no. A-7530, ascribed to Period 2, has obviously to be discounted because of the overwhelming evidence for the dates of Period 3.) Out of the fifteen dates for the Mature Harappan Period, only one date, viz. 3334/2990 BC (Sample AZ-7524), goes prior to 2600 BC. Likewise, there is only one date, viz. 1629 BC (Sample A-7528), which post-dates 2000 BC. It would thus be seen that the time-frame for the Mature Harappan Civilization proposed in the main body of this chapter, viz. 2600-2000 BC with a minor spill-over on the latter side, is fully supported even by these new radiocarbon dates from Harappa.

Table 7: Harappa 1993, Radiocarbon Dates

Lab no.	Period	5730/BC	BC (1 Sigma)
A-7521	3	2062+/-70	2465, 2376
QL-4729	3	1881+/-40	2180, 2076
A-7522	3	2041+/-55	2457, 2389
QL-4732	3	2056+/-20	2453, 2379
A-7523	3	2000+/-50	2395
QL-4733	3	2005+/-20	2320
AZ-7524	3	2566+155/-150	3334, 2990
QL-4734	3	1984+/-60	2393, 2225
A-7525	3	1953+/-85	2391
QL-4731	3	2046+/-40	2455, 2386
A-7526	3	1912+150/-145	2450
AZ-7527	3	2026+/-95	2575
A-7528	3	1310+190/-185	1629
A-7529	3	2072+/-75	2468, 2429
QL-4730	3	2067+/-30	2460, 2446, 2372
A-7530	2 (?)	1701+155/-150	2120

Part III

THE DECLINE

XIV

DECLINE AND LEGACY

Anything like the mighty Harappan Civilization that dominated the northern parts of the Indo-Pakistan subcontinent in the second half of the third millennium BC was not to be witnessed again in the subcontinent until the middle of the first millennium BC when another great civilization came into being, the focus, however, having shifted from the Indus-Sarasvatī basin in the west to that of the Gaṅgā-Yamunā in the east. This latter civilization saw a long continuity and may be regarded as a major contributor towards the make-up of what subsequently came to be recognized as the mainstream of the Indian civilization. But did the Harappan Civilization leave no legacy? And if did, as it seems to have done, what was the nature of this legacy? To understand all this, it would be necessary first to go into the probable causes of the decline of the Harappan Civilization itself.

Scholars have adduced various reasons for the end of the Harappan Civilization, such as external invasions, massive flooding, catastrophic climatic changes, wearing out of the landscape through overuse rendering it less and less productive, and so on. While some of these did no doubt have their share in the fall, there seems to be yet another factor which needs to be emphasized. Earlier, the author stressed that a spurt in trade, both internal as well as external, seems to have played a major role in bringing about the affluence of the Harappan Civilization. Here he is inclined to suggest that a fall in and subsequent snapping of this trade may have been a major factor in the decline and ultimate fall of this civilization, though no doubt there were other ancillary causes as well. Just as in a matter of a century or so, around the middle of the third millennium BC, there was an explosion of Harappan trade with Mesopotamia, Persian Gulf, etc., including the setting up of a trading colony as far north as Shortughai in Afghanistan, and an almost simultaneous setting up of the great urban centres on the subcontinent itself, a fall in this trade around the end of that millennium synchronized with the decline of the big cities which disintegrated within a matter of a couple of centuries at the most. While we shall go in some detail into this fall in trade *vis-a-vis* the urban decline a little later, it may be well worthwhile to discuss, though briefly, some of the more dramatic causes that have been advanced for the end of the Harappan Civilization.

'On circumstantial evidence Indra stands accused', declared Wheeler in the report on

his 1946 excavations at Harappa (Wheeler 1947: 82). To Wheeler must go the credit of excavating the fortification-wall around one of the mounds (Mound AB) at Harappa. This discovery when looked at against the backdrop of the Vedic literature wherein it is mentioned that Indra, the favourite Aryan god, was the destroyer of forts (*puriṁdara*), made Wheeler think that the Aryan invaders were responsible for the end of the Harappan Civilization. The mention, again in the Vedic literature, of a place by name Hariyūpīyā added fuel to the fire, for it was most tempting to identify, on the basis of 'sound'-philology (which unfortunately is not always sound), the Vedic place-name with modern Harappa. To strengthen his theory of the Aryan invasion, Wheeler cited the skeletal remains in the upper levels of Mohenjo-daro, holding that the dead had been massacred by the invading Aryan hordes.

Enough has been written on this 'mythical massacre' at Mohenjo-daro to demonstrate the fallacy of Wheeler's assumption (Dales 1964). To recapitulate very briefly, all the skeletons do not belong to one and the same stratum, nor do these strata mark the end of the site. Further, by and large, the skeletons show very little evidence of physical injury — an evidence legitimately expected in the case of mass murder. In a few cases no doubt there existed cranial cuts, but these had been partially healed, indicating that there was a time-lag between the injury and the death, which would not have been the case had the persons concerned been massacred in an invasion. Even on another ground it would be wrong to invoke any 'foreign invasion', much less that of the Aryans, since no traces of any alien material — expected to be left by the invaders — is available in the levels where the skeletons have been found, nor even in the subsequent levels. The Jhukar elements found in the upper levels of the site were not 'foreign', but belonged to the devolutionary stage to which we shall refer a little later.

Another theory (Raikes 1964, 1965) has it that there was a great tectonic uplift upstream from the Indus delta, in the neighbourhood of Sehwan, resulting in the formation of a huge lake which engulfed Mohenjo-daro and other sites and in the sequel brought about the end of the Harappan Civilization. To strengthen his argument, Raikes quoted the recent (1819) uplift of a similar area, known as Allah Bund. This theory has successfully been refuted by Lambrick (1967) and Possehl (1967) and one need not go into the various arguments all over again. While there is no doubt about the raising of the mud-brick platforms in the Citadel area at Mohenjo-daro, this may have been due partly to some flooding but perhaps equally to the very concept under which the buildings in the Citadel at Mohenjo-daro had been laid out, namely their placement on deliberately constructed platforms. Thus, as and when necessary, these platforms had to be renewed and raised. However, this is a feature not exclusive to Mohenjo-daro, but is available at Kalibangan also where there is evidence of the raising of the platforms, but none whatsoever of any kind of flooding. In any case, just the flooding of a few individual settlements like Mohenjo-daro cannot and ought not be regarded as having brought about the end of the civilization. Jhukar, Amri and Chanhu-daro, all located in the same lower Indus valley, continued to exist. And it is such sites as these that throw valuable light on what ultimately happened to the once mighty Harappan Civilization, namely, a devolution and not an abrupt end through a foreign invasion or a catastrophic flood. Also, as would be shown later, this devolution — its rate and configuration — varied from region to region, depending on a number of local factors.

We have just referred to Jhukar, Amri and Chanhu-daro as examples demonstrating the devolution of the Harappan Civilization.

Way back, in 1928, N.G. Majumdar identified at Jhukar a pottery type which was in certain ways different from the Mature Harappan pottery. Thus, while the latter was a sturdy red ware, often with a red slip and designs painted in black pigment, in the case of the former there was an additional use of red/ brown colour and quite often of a slip that varied from white to a shade of buff. The Jhukar painted designs too were not so crisp and replete with variety as in the case of the Mature Harappan, and included such features as loops along the rim, circles with red dots, elongated lozenges, thickly outlined leaves, multiple zigzag lines, etc. As it happens with most discoveries, much was made of a somewhat different pottery-style, and Mackay, who excavated Chanhu-daro, and Piggott, who wrote the first ever all-inclusive account of prehistoric India, overemphasized this single culture-constituent and treated the Jhukar pottery as signifying an altogether different culture, called Jhukar Culture, with a break between it and the Harappan (Mackay 1943; Piggott 1950). That this indeed may not have been the case was often mooted, but has now been categorically established by fresh excavations at Jhukar itself by M.R. Mughal (1992).

At this site, below the early historical levels and with a break between them and the preceding ones, Mughal encountered a continuous occupation which he divided into three phases. In all the three phases Mature Harappan pottery and other associated artefacts were met with, though there was a decrease in them as one came up. However, more important is the fact that the characteristic Jhukar style pottery occurred in the uppermost phase and did not account for more than 8 per cent of the total pottery assemblage (Mughal 1992: 215). It is thus absolutely clear that: (i) there was an occupational and cultural continuity from the Mature Harappan times to those when the Jhukar-style pottery came into being; and (ii) there is hardly any justifiable case for treating the so-called 'Jhukar Culture' as an entity quite separate from and having nothing to do with the Mature Harappan. No pottery-styles or for that matter styles in other artefacts are eternal. They do undergo changes. Continuity coupled with change, whether involving evolution or devolution, is one thing, whereas discontinuity followed by subsequent appearance of an altogether alien outfit is another. The Jhukar Culture falls in the former category.

Since Mughal's paper (1992) is devoted to the late Harappan cultural mosaic in general, he has not given details of how the other culture-constituents, such as seals, weights, etc. behaved through the three successive phases. Anyway, a better picture of these can be had from what happened at Amri and Chanhu-daro.

In Chapter IV we referred to the work of Majumdar and Casal at Amri. Casal (1964) identified five occupational periods, as follows: IA-D, Amri Culture; IIA-B, Intermediate; IIIA, Mature Harappan; IIIB, Transitional; IIIC, similar to Mohenjo-daro upper levels; IIID, Jhukar; IV, Jhangar; and VA-B, Medieval.

With the beginning of Period III, there was full manifestation of the Harappa Culture and the Amri pottery disappeared. However, within this period itself there are four subdivisions, A, B, C and D. Not being a metropolitan town or a trading station, the site is not rich in certain classes of antiquities, such as seals, sealings, weights, etc.; only a few examples of these have been discovered. However, it has yielded very useful evidence in regard to the pottery which shows a gradual change (or devolution if one likes to use that term) from one subperiod to the following. Thus, for example, in the case of the dish-on-stand, the stand-part was usually squattish in Subperiod IIIA, while in IIIB there were more examples of a longish stand. In IIIC, in the upper part of the elongated stand there was

a bulbous protuberance. Likewise, there was a change in the rim-part of the basins and bowls: whereas in IIIA it was nail-headed, in IIIB it became slightly everted; in IIIC and IIID it got projected outwards and even became flattish. Surface-treatment as well as the painted designs also kept on gradually changing. For example, besides the usual black-on-red ware, IIIC yielded: (i) a light-brown chocolate ware with designs in black or violet black, and (ii) a pinkish or purplish blue ware with black or violet designs. Even the designs showed a change, both in their execution as well as subject-matter. Thus, for example, from IIIC onwards the outlines were heavier indicating the use of a thicker brush. The new designs included a series of internally striped ovals, barbed circles with a central dot, etc. In IIIC the design of a small tree bearing big leaves with hatched filling and thick outline becomes more conspicuous. The latter designs and even the surface-treatment referred to earlier are typical of what has been designated as the Jhukar Culture. To Subperiod IIID is also ascribable a stone seal characteristic of the Jhukar Culture. Here again is a case of gradual transformation from the Mature Harappan stage to an impoverished Jhukar one. To quote the excavator himself: 'We hope to have thus typologically justified our belief that the so-called Jhukar Culture, which cannot do anything at Amri but immediately follow Period IIIC, does really belong to the same process of evolution and degeneration as the Harappan Period exemplified by Period IIIA' (Casal 1964: Summary, 13).

Chanhu-daro, opposite Amri, on the eastern side of the Indus has a similar evolutionary story to tell. Explored and partially excavated by N.G. Majumdar in 1929 (Majumdar 1934), it was subjected to detailed operation during 1935-36 by E.J.H. Mackay (1943). However, due to high water-table the lowest occupatonal levels were not reached and hence one cannot say if any Amri-like material existed there or not. Thus, the earliest identified levels were those of the Harappa Culture. Of the Harappan occupation, three distinct structural strata were identified, with a deposit of silt and debris in between them. These were numbered by Mackay as I, II and III, from top downwards. However, in keeping with the current practice, these are now labelled as Subperiods Ia (III), Ib (II) and Ic (I) and are here referred to as such. While discussing the layout of the settlement and structures, Mackay (1943 : 39) states: 'The arrangement of these streets [referring to the streets of his Period II] shows that some attention had been paid to town-planning, a feature which we did not find in the Harappa I level above. Nor did we find any drainage system of importance in the latter stratum. A very considerable decline in the amenities of life had evidently taken place in the interval between the two periods. This decline was also noted in the uppermost strata of Mohenjo-daro.'

Subperiod Ib (Mackay's II) seems to have been the most affluent, for herein was found evidence of the manufacturing of a number of commodities meant for trade, both internal as well as external. For example, the presence of beads in various stages of preparation as well as of drills and lumps of raw material leaves no doubt about their mass production. Likewise, the occurrence of unfinished weights, of course along with the finished ones, points towards their local manufacture. Since weights are highly specific objects and require perfect standardization, it may well be that Chanhu-daro supplied them to many other Harappan settlements, though there may have been a few other centres of this kind. Evidence also indicates that Chanhu-daro was making seals as well; of these, as many as eight unfinished examples were found in one area. Shell-working may have been still another craft of this settlement. But corroborating the aforesaid evidence of general decline in town-planning, structures, dra-

inage system in Subperiod Ic, these various crafts were also on the wane in that period. Thus, for example, in the list of antiquities coming from Subperiod Ib of Mound II Mackay mentions 15 seals, whereas only one comes from Subperiod Ic. A similar fall may be noted in respect of the weights. The overall picture, thus, is of a decline from Subperiod Ib to Ic.

Subperiod Ic presents yet another aspect of this story. In it, along with the typically Harappan objects, had been found many which belong to the Jhukar Culture, thought to be 'alien' by Mackay. However, a closer study of the data given by Mackay himself indicates that whereas there were silt and debris deposits between Subperiods Ia and Ib and again between Ib and Ic, although all the three belonged to the Harappa Culture, there was no such intervening deposit between Subperiod Ic and what has been termed as the Jhukar occupation. In fact, Mackay himself states that the so-called Jhukarians used the houses of Subperiod Ic. Thus, there seems to be *prima facie* a case for a transition, in Subperiod Ic, from the Harappan assemblage to that known as Jhukar, rather than the latter being an altogether alien culture imported from elsewhere. However, to clear up the mess, it would perhaps be well worthwhile to carry out fresh excavations at the site, on the basis of soil-stratigraphy, since the one by Mackay, as is well known, was done on the basis of bench-levels.

From the foregoing analysis of the data from Mohenjo-daro, Jhukar, Amri and Chanhudaro it would be seen that the Harappan Civilization was not found dead one fine morning but that in the Sindh region it devolved gradually and got transformed into what is known as the Jhukar Culture.

Moving northwards into the plains of the middle Indus and its tributaries, one comes to the site of Harappa. Vats' excavations over here brought to light the remains of the Mature Harappan Civilization as well as those of what he called the Cemetery H Culture after the burials encountered in an area designated as 'H'. Of these burials, two strata were identified: an earlier one (called Stratum II) with extended burials and a later one (called Stratum I) with fractional interment inside large pots. The concomitant material in both strata, however, was almost the same. Pottery similar to that from Cemetery H burials had also been found on Mounds AB, E and F, pointing to the corresponding habitational deposits.

The exact relationship of Cemetery H with the Mature Harappa Culture, however, has long been a matter of debate. The Cemetery H pottery is characterized by a bright red slip and bears paintings in jet black pigment. The designs, singly or in combination, have their own identity and cannot be confused with those on the Mature Harappan pottery. Besides, the section-drawing published by Wheeler (1947: pl.XXXIX) of his trench linking the Harappan Cemetery (R-37) with Stratum I of Cemetery H shows that a massive debris layer intervened between the two, pointing *ipso facto* to a time-lag. Wheeler (1947: 81-82), following Gordon Childe, was inclined to think that the Cemetery H people may represent the Aryan invaders who destroyed the Harappan Civilization.

However, fresh excavations at Harappa by Dales, Meadow and Kenoyer seem to suggest a different story. Organizing the stratigraphy of Mound E, which had remained almost untouched previously and where their main work lies, the excavators, as stated earlier, have worked out five periods from bottom upwards. To recall, their Periods 1 and 2 relate to a pre-Harappan/Early Harappan Culture, there also being a manifestation of transition from the Early Harappan towards Mature Harappan in the upper levels of Period 2. Period 3 is typically Mature

Harappan. Period 4, again, shows elements of transition, this time towards the Cemetery H Culture which is fully manifest in Period 5. Kenoyer states (1991: 56): 'On the basis of ceramic styles and morphology, some of the latest burials in the recent cemetery excavations as well as some of the early burials in Cemetery H excavations by Vats (1940) may be associated with Period 4'. Referring to Period 5, he adds, 'The final occupation of the protohistoric period is characterized by Cemetery H or Late Harappan ceramics. ... These strata contain Cemetery H ceramics and have drains and baked bricks of a size smaller than those of the earlier Period 3 occupation. ... Period 5 may reflect only a change in the focus of settlement organization from that which was the pattern of the earlier Harappan phase and not cultural discontinuity, urban decay, invading aliens, or site abandonment, all of which have been suggested in the past' (Kenoyer 1991: 56).

Since it is of fundamental importance to understand what exactly happened immediately after the Mature Harappan phase in Pakistani Panjab and adjacent areas, it would be appropriate if the evidence from Harappa is cross-checked from other sites as well in the region.

Cholistan, in the former Bahawalpur State of Pakistan, has been extensively explored by Mughal (1990a). Now a desert, it used to be watered by the Hakra which, further up in northern Rajasthan (India), is known as the Ghaggar on whose bank the well-known Harappan site of Kalibangan is located. To recall, in Cholistan, Mughal came across 99 sites associated with a ware called by him as the 'Hakra Ware', representing the earliest settlement in the region. In succession, there were 40 sites of the Early Harappan Culture, 174 of the Mature Harappan, 50 of Late Harappan and 14 of the Painted Grey Ware.

Mughal's 'Late Harappan' sites are all characterized by the Cemetery H Ware. However, one thing needs to be noted, namely that Mughal did not carry out any excavation and thus it is difficult to know whether or not there was a regular transition from the Mature Harappan phase to that of Cemetery H. It is only to be hoped that one day Mughal will find an opportunity to do the same, since, as I said earlier, the evidence of such a transition at Harappa needs to be confirmed by other sites.

Giving a statistical break-up of his 50 Late Harappan sites, Mughal (*ibid*.: 151) adds that '46.1 % of the total Late Harappan sites are less than 5 ha in size and nearly 27 % come within the range of 5 to 10 ha. Four sites cover an area of 15 to 20 ha, while the site of Kudwala, near Yazman, covering 31.1 ha, is the largest settlement of the Late Harappan period. It is evident that some population had concentrated at four settlements of up to 20 ha in size and at two sites of 10 to 15 ha, but all were dominated by the large urban centre of Kudwala.' One wishes Mughal takes up this particular site for excavation, since one would like to know what kind of 'urbanism' still continued in the Late Harappan (Cemetery H) times. Did the people practise town-planning and have monumental buildings? Did they use seals and sealings and weights and measures? And does the site yield any evidence of long-distance trade? Anyway, the size of Kudwala, viz. 31.1 ha, is far less than that of Ganweriwala, a Mature Harappan settlement in the same region, which, according to Mughal's own data, was 85.5 ha in extent. *Prima facie*, a decline seems to have set in.

As one proceeds eastwards along the Hakra-Ghaggar system, one enters northeastern Rajasthan. Here the prolonged excavations at Kalibangan did not give any inkling of a post-Mature Harappan period. No doubt the occupational area in the upper levels was found to have shrunk as compared to the overall extent of the site, but this seems to be due to the erosion of the upper levels of the

mound during the past four thousand years. It may also be noted that even in the latest phase the layout of the streets was not meddled with, nor did such antiquities as seals and sealings disappear. Kalibangan thus met its death as an adult and did not witness an incapacitated old age. The reason for the abandonment of Kalibangan, and like it of the other sites in the region, seems to lie in the drying up of the Ghaggar river which was the main, or perhaps the only, source of water-supply. The wells found inside the houses could not, in any case, have provided water for agricultural activities.

In northeastern Rajasthan, Haryana and Panjab there is ample evidence to show that a series of small to sizable rivers joined the Ghaggar system. Many of these are now dry. The Mature Harappans had already occupied the banks of some of these rivers, establishing such sites as Banawali, Rakhigarhi, Balu, etc. Since in these upper regions water-supply was not so much of a problem as in the middle Ghaggar valley, it is in these regions that we find a good deal of evidence relating to the post-Mature Harappan phase.

To the north of the Ghaggar system there are the Sutlej, Rāvī and Chenāb. The Harappans seem to have made use of these river-courses as well, and this would account for sites like Kotla Nihang, Rupnagar (formerly called Ropar) and Bara along the Sutlej and Manda along the Chenab. At a somewhat later stage the Late Harappans crossed into the upper Gaṅgā-Yamunā *Doāb*, presumably along the piedmont area and broke new grounds by establishing sites like Bargaon, Alamgirpur, etc. J.P. Joshi and his colleagues (1984) have listed over 500 sites assignable to the various stages of the post-Mature Harappan scenario in these regions, covering roughly a major portion of the second millennium BC. While it is difficult to deal with the data yielded by all these sites, an attempt will be made to analyse and synthesize the more important pieces of evidence.

However, before that is attempted, it may perhaps be important to make a statement regarding what I mean by the term 'Late Harappan', since it has often been used rather loosely or in different senses by different scholars. To me Late Harappan would mean a culture-complex which has tranformed itself from the Mature Harappan, losing some of the latter's traits and evolving some new ones, but still identifiable as having been derived from the latter. To put it differently, it may be likened to one Mr. X in his old age, whose hair may have grown grey, skin shrivelled, the limbs may have lost muscularity and who may even be walking bent with the help of a stick, yet anybody who had seen him in his youth should be able to recognize him (maybe with some initial hitch) as the same Mr. X. But once the culture-complex gets diluted beyond recognition, it may not be advisable to use the term 'Late Harappan' for it. For example (just to anticipate what would be discussed in some detail later), while the culture-complex met with in Banawali Period II is Mature Harappan all right and that of Alamgirpur Period I may be regarded as Late Harappan, the cultural amalgam at Dher Majra, wherein not only is the pottery not recognizable as Harappan but amongst the antiquities also none is characteristically Harappan, loses the right to be designated as Late Harappan. We do have to draw a line somewhere.

In trying to work out what happened in Haryana and Panjab after the Mature Harappan it may be recalled what was there in these regions prior to and contemporary with the Harappan. In the present state of our knowledge two trends seem to have existed, namely one of the pre-Harappan Kalibangan type, particularly in the Ghaggar system, and the other of a complex known as the Baran from the type-site Bara on the Sutlej. These complexes are to be seen independently at some

sites, along with the Mature Harappan at some others and again in the post-Mature Harappan stage. At some of the sites elements of Cemetery H also show up, though in a feeble way. This may perhaps be explained by some kind of contact with the Bahawalpur region in a post-Mature Harappan context. A somewhat delailed picture of a few selected sites may now be presented to substantiate the aforesaid general remarks.

To begin with Banawali. As mentioned earlier, the site brought to light three occupational periods. From bottom upwards, Period I was characterized by a culture-complex similar to that of Period I at Kalibangan. However, in the upper levels of this Period certain features had started manifesting themselves which were to be characteristic of the subsequent Period II, for example triangular terracotta cakes, chert blades and bricks having a ratio of 4:2:1. Without any break, there was Period II which, while incorporating the material of Period I, showed the Harappa Culture in its maturity — seals, sealings, weights, measures, etc., and an Acropolis and a Lower Town, both within an overall fortification wall, though the former was separated from the latter by a partition wall.

However, as regards Period III, the excavator states (Bisht 1987: 151): 'After the desertation of the site by the Harappans for unknown reasons there followed the time of break before the impoverished post-Harappans entered the stage. The newcomers settled down in the east, under the very shadow of, but outside, the fort-town of their predecessors.' Within an average deposit of a little over 50 cm assignable to this period three building phases were noted. In Phase 2 an over 30-metre long outer wall of a house was encountered along with a few rooms on the inner side. It was made of clay, there being no evidence of even mud bricks, not to speak of kiln-fired ones. However, in this and other houses there was evidence variously of clay-bins, storage pits, fireplaces and *tandūrs*. The storage pits were circular on plan, had tapering or straight sides and a flat bottom, the entire interior being plastered.

As regards the pottery of Period III, Bisht (*ibid.*: 152) adds: 'Curiously all classical Indus shapes and painted motifs are conspicuous by their absence. Conversely, most shapes prevalent during Period I at Banawali and other identical sites are present during Period III at Banawali but with slight or pronounced modification.' Made of well-levigated clay and well fired, the pottery had a glossy red slip. The shapes included, besides the usual dish-on-stand so common to most of the pre-Harappan, Harappan and post-Harappan complexes, cooking vessels, baking plates, dough plates, etc. No detailed drawings of this pottery are available for analysis. Thus, one can do no better than to quote the excavator once again (Bisht *ibid.*: 152): 'By and large this pottery has shown strong genetic relationship with two distinct ceramics, i.e. the Kalibangan Period I pottery and Bara pottery.'

Period III was poor in antiquities. In any case, none of the characteristic ones of the Mature Harappan Civilization, such as seals, sealings, weights, measures, chert blades, etched carnelian beads, etc. were found. Some small pieces of terracotta or baked clay are, however, reminiscent of the Harappan triangular 'terracotta cakes'. Noteworthy, however, was an unidentified terracotta object. It has a square base, concave body which finally terminates into projections looking like snake-hoods (fig. 14.1). Because of its discovery in a pit which also contained a *liṅgam*-like terracotta, the former piece is also thought to have been a cult object. Additional significance attaches to this object since more or less similar pieces have been found at sites like Bara (fig. 14.2), Hulas, etc.

In sum, Banawali does not give us the story of an *in situ* devolution of the Mature Harappa Culture itself. Instead, it presents a

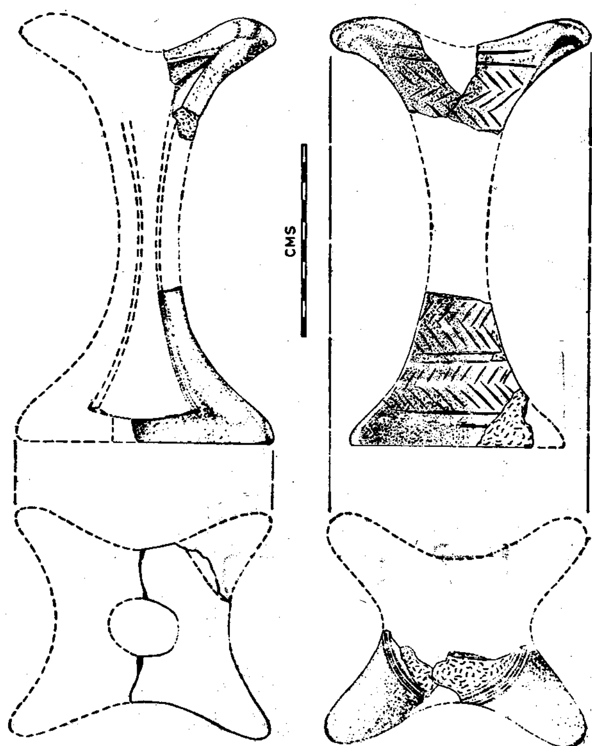


Fig. 14.1 Banawali: Terracotta object from Period III

fait accompli — a culture distanced from the Mature Harappan both in time and content. Qualitatively, it may be noted, it had no urban insignia.

However, Balu, a site about 90 km east of Banawali, yielded a sequence which shows a transition from the Mature Harappan stage to the Late Harappan, as does Mitathal, about 70 km to its south. While Balu A is comparable to Kalibangan I and Balu B to Kalibangan II, Balu C is post-Kalibangan II, showing a continuation to a later stage. There were changes in the pottery-types, but the sizes of bricks used in Balu C were the same as in Balu B. Burnt-brick drains were also noted in Phase C, showing that civic standards had not yet completely disappeared (Singh and Bhan 1982).

The small-scale excavation at Mitathal yielded two periods of occupation (Bhan, S. 1975). Period I yielded material similar to that of Kalibangan I; even the brick-ratio of 3:2:1 is repeated. Period II has been divided into A and B. In Period IIA not only do the elements of Period I continue but those of typically Harappa Culture are also present, including bricks in the ratio of 4:2:1. There is also evidence of some sort of town-planning, with streets/lanes oriented north-south and east-west. From IIA to IIB there was no break, but a transition involving general deterioration in the cultural equipment. Some of the pottery shapes show a clear change (fig. 14.3). For example, the dish comprising the upper part of the dish-on-stand now has a pronouncedly drooping rim. Some of the vases have a long neck gradually flaring out and ending up in a wide mouth with an everted rim. Also to be noted is bowl-shaped lid with a central knob. These are some of the types which may be regarded as characteristic of the Late Harappan in this region. With these also go pots bearing a variety of incised designs on the exterior.

Moving northeastwards in the overall Ghaggar system, one may note the culture-sequence at Bhagwanpura. It carries the story beyond the Late Harappan stage, to a point of overlap between an amalgam of various trends derivable through a long process of

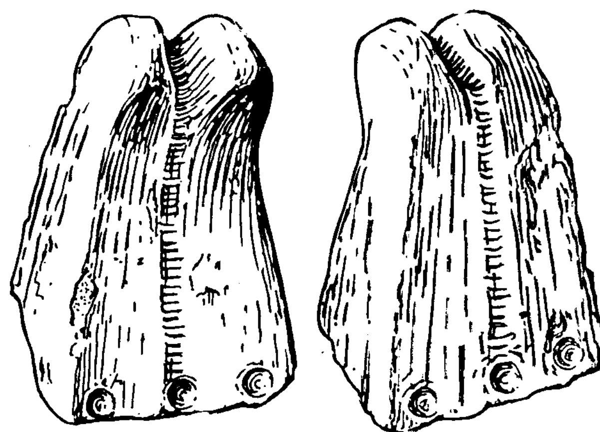


Fig. 14.2 Bara: Terracotta object, height 17.5 cm

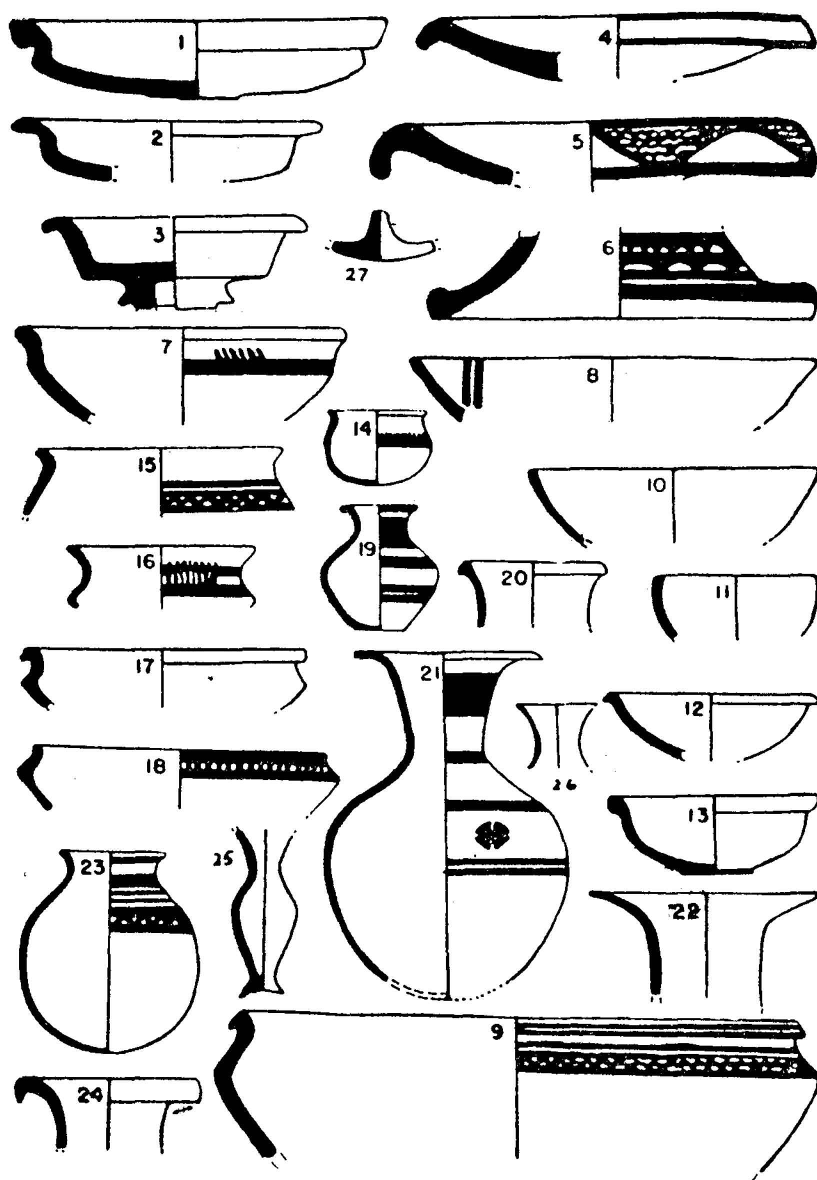


Fig. 14.3 Mitathal: Pottery from Period IIB

devolution from the Harappan, Baran and Kalibangan I cultures on the one hand and the Painted Grey Ware Culture on the other. This overlap may have taken place some time in the last quarter of the second millennium BC.

Located on the right bank of the Sarasvatī in District Kurukshetra, Haryana, Bhagwanpura was excavated by J.P. Joshi (1978, 1993). Within an occupational deposit of 2.5 m in thickness, he identified two subperiods, called IA and IB. Assignable to IA, which was Late Harappan in character, there was a large mud platform presumably put up to protect the habitation from the floods of the Sarasvatī. The dominant pottery was a red ware, plain and painted, the most distinctive forms being dishes-on-stand with drooping rim, jars with long splayed-out neck and everted rim, thin flasks, button-based goblets and cups, etc. Amongst the painted designs, which included geometric and vegetal motifs, one may mention the pipal and banana leaves so common on the Harappan ware. Joshi also

refers to a thick Grey Ware as well as Baran pottery. The suggested Cemetery H affiliation of some pottery may be only superficial, since the typical Cemetery H forms and painted designs have not been reported.

Subperiod IB witnessed a dilution of the Late Harappan pottery along with which there occurred first plain grey ware and then the typical Painted Grey Ware. Within this subperiod three structural phases were noted. In the earliest were found round and semi-circular thatched huts. To the next belonged a large 13-room mud house in which were found plain grey and Painted Grey Ware vessels along with a small percentage of pottery derived from the Late Harappan repertoire. In the latest phase were encountered the remains of structures made of kiln-fired bricks whose sizes are quite different from those of the Harappan, such as 12 x 12 x 8 cm, 16 x 12 x 4 cm, etc. Amongst the antiquities mention may be made on the one hand of an incised terracotta ram of Harappan derivation and, on the other, of a violin-shaped 'Mother Goddess' in grey ware, the latter of which continues into the early historical times in the Gaṅgā valley. The kind of overlap witnessed at Bhagwanpura has been noted by Joshi at Dadheri, Kathpalon and Nagar, all in Panjab. It also needs to be noted that at none of these four sites was iron met with even in the overlap period.

In the context of the aforesaid overlap one may also refer to Sanghol, excavated first by Bisht and then by G.B. Sharma. According to the latter, the protohistoric occupation of the site is divisible into three subperiods, viz. IA, IB and IC. Of these, IA yielded the Bara Ware without structures; IB had the Bara Ware along with structures; and IC gave evidence of an overlap between the Bara and the Painted Grey Ware (Y.D. Sharma 1982: 157).

In the preceding pages we have referred to Bara pottery/Bara Culture, without giving even a summary of the excavations at the site. This was due to the fact that until now we were dealing with sites primarily in the Ghaggar system, making only a casual reference to sites located elsewhere. Now we shall take up two noteworthy sites on or close to the Sutlej, viz. Bara itself and Ropar (now known as Rupnagar).

Bara has a 4-m thick occupational deposit, with a very distinctive pottery called the Baran. However, owing to some minor changes the strata have been grouped into Lower, Middle and Upper. The Baran pottery, all wheel-turned and made of fine-to-medium-grained clay, has a dull brown slip and bears painted designs in black or dull chocolate colour. Often there are incised designs as well which in a way distinguish the Baran pottery from the Harappan. Amongst the most distinctive features of the Baran shapes mention may be made of short and wide stems in many examples of the dish-on-stand, or a ledged projection from the drum part wherever it exists in the longish stems, the drooping of the rim in the case of the dish constituting a part of the dish-on-stand, pedestalled base for bowls, provision of knobs on the inner side of lids, etc. Amongst the painted designs one notes the absence of intersecting circles, pipal-leaves, fish-scales, etc. On the other hand, there are motifs such as a two-horned curve with a tanged arrow in the middle, horizontal or vertical series of 'willow'-leaves, solid dots enclosed by horizontal bands, 'eyes' fringed by vertical lines, etc. (Sharma *ibid.*: 150).

While the above-mentioned Baran pottery runs all through the occupation of the site, in Subperiod IB there is ample evidence of Harappan contacts. In Subperiod IC the incised designs become shallow and likewise the quality of the paintings gets poorer. Amongst the antiquities special mention may be made of a terracotta object with a 10-cm square base, 17.5-cm height, tapering outline and two bifurcated terminals at the end (fig. 14.2).

Though not exactly similar to the terracotta specimen mentioned above in the case of Banawali Period III, it would appear to fall in the same category. Sanghol and Chandigarh have also produced similar terracotta objects. All these, as surmised earlier, may have had association with some religious cult.

The earliest occupation at Ropar, labelled IA, began with Kalibangan I-like ceramics but soon there appeared the Mature Harappan (IB) which is fully vouchsafed not only by the typical pottery but also by chert weights, seals, sealings and even characteristic burial practices. Baran contact, though feebly noticeable in IA, was well in evidence in IB.

In a nutshell, the overall picture in the upper Sutlej valley highlights a local pottery tradition termed the Baran. It is in this *milieu* that the Mature Harappan made its appearance. However, in due course of time the Harappan elements became feeble but the thrust of the Baran continued.

Looking for new grounds, the Harappans penetrated even the Gaṅgā-Yamunā *Doāb*. This seems to have happened some time towards the end of the third or the beginning of the second millennium BC. In this region three sites call for special attention, viz. Alamgirpur, Hulas and Bargaon. The excavation at Alamgirpur has brought to light four periods of occupation, with a break in between them all. Of these, the lowest represents a cultural *milieu* which is not far removed from the Mature Harappan stage. For example, it has yielded a pot bearing an inscription in the Harappan script, while quite a few pot-forms are also typically Harappan, such as perforated jars, cylindrical jars, beakers, ring-stands, etc. Some of the painted designs are also familiarly Harappan: the peacock, intersecting circles, rows of hatched triangles and squares, etc. However, there do occur shapes which are distinctive of the Late Harappan stage (fig. 7.3). Thus, while some of the dishes-on-stand are of the standard Harappan variety, those with a prominent drooping of the rim of the dish point to a Late Harappan stage. So do jars with long neck and splayed-out rim. The pointed bottom goblet, which occurs in the upper levels of the Mature Harappan stage in the lower Indus Valley, is also present at Alamgirpur. Amongst other typically Harappan antiquities, mention may be made of triangular terracotta cakes, cubical dice with 1-6 markings on different faces, toy-carts, faience bangles, steatite beads, etc.

In the limited excavation no data about the settlement-plan could be obtained, but it was clear that, besides mud and mud-bricks, kiln-fired bricks had also been used. Two sizes of these latter bricks were noted which were not far removed from the Mature Harappan concept of 4:2:1. However, the size of the settlement is not indicative of its having been a city. At best, the status of a small town could be given to it.

The settlement at Hulas, ascribable to Late Harappan times, was neither a big one nor did it have a very long life. It was bereft of weights, measures and seals. However, it did yield a sealing bearing three letters of the Harappan script, but without any animal or other motif. There was no systematic laying out of the settlement, not to speak of a grid-patterned planning. Though a few fragments of kiln-fired bricks were no doubt found, it is doubtful if these were used in house-construction. Mud-built houses seem to have been the norm. However, mention must be made of the existence of a large mud platform which, as the excavator thinks, may have been put up as a protective measure against likely floods. There is little to suggest that it was used as a base for any monumental building.

The pottery (figs. 7.1 and 7.2) is characteristically Late Harappan, comparable to its counterpart in the region immediately to the west of the Yamunā. The more noteworthy types are: dish-on-stand with a prominent drooping of the dish's rim; jar with long neck

and splayed-out rim; bowl-like lid with a central knob; miniature pots with pedestalled base. In so far as the painted designs are concerned, these recall the Mature Harappan ones only in such examples as the peacock, row of hatched diamonds, filled and inverted triangles, etc. Otherwise, the designs are more simplistic, for example, linear bands in groups, laid horizontally or vertically. A few of the potsherds also reflect a continuum, howsoever feeble, from the pre-Harappan tradition.

The antiquities, amongst others, include: terracotta cart-wheels with a raised hub, terracotta 'cakes' either oval with pointed ends or round with deep finger-impressions (the excavator does not report the flat triangular variety), beads of faience, agate and carnelian (no reference has been made to etched examples), bangles of copper, faience and terracotta, stone querns and pestles and some bone points. It would thus be seen that whereas the repertoire is reminiscent of the Harappan tradition, in its entirety it is not characteristically Mature Harappan.

Another point which deserves to be noted in respect of Hulas is that it does not show any overlap with the subsequent occupation which was that of the Painted Grey Ware. Thus, a Bhagwanpura-like situation is not in evidence here. This, however, is understandable since the IB occupation at Bhagwanpura, which represents the overlap phase, is later than the Late Harappan of even Hulas.

Bargaon, excavated by M.N. Deshpande, is tucked up further to the north in the *Doāb* region, and by its very location may have been influenced by features manifest in the Late Harappan of the Sutlej region to the west. Unlike Alamgirpur and Hulas, it is a single-culture site, there being no subsequent PGW or other settlement. Only two small trenches were laid out, which revealed an occupational deposit of a little over a metre. The published pottery includes the jar having characteristically long neck with splayed-out rim. Amongst the antiquities one might mention terracotta toy-cart wheels with central hub, terracotta 'cakes' either spheroid or oblong in shape and often bearing finger-depressions, a pot with animal-headed handle, part of a copper celt and some rings, faience and terracotta bangles and a few chert blades. There is no evidence of kiln-fired bricks nor even of mud-bricks. Maybe the houses were of mud or, for all one can say, of even wattle-and-daub. All told, it appears that Bargaon represents a late stage within the Late Harappan itself. In what manner the story continued later in the *Doāb* requires further intensive exploration in the region. Was there a commingling of a very late Harappan hangover with the PGW, as it took place in the regions west of the Yamunā?

We may now turn our attention to another domain of the Harappan Civilization, viz. Gujarat which State includes, besides the Gujarat plains, the regions of Kutch and Saurashtra. Of the many sites explored and excavated, we shall consider here two from Gujarat, viz. Lothal and Rangpur, two from Kutch, viz. Surkotada and Dholavira, and one from Saurashtra, viz. Rojdi.

It may be recalled that the excavator of Lothal (Rao 1979 and 1985) divided the occupational strata at the site into two periods called, from bottom upwards, A and B. He further divided Period A into four phases, viz. I-IV, Period B being called Phase V. Period A was essentially Mature Harappan, evincing all characteristic features such as seals, sealings, weights, measures, gridiron layout of the settlement, monumental buildings, typical fabric, types and painted designs of the pottery, etc. However, even in Phase IV of Period A one begins to notice certain signs of loss of civic control and decline. For example, there were encroachments on the streets, no construction of public drains and, above all, the

Acropolis and warehouse were scarcely used. Likewise, the dockyard too began silting up and went absolutely out of commission in the subsequent phase, viz. V (Period B). This tendency towards decline was also reflected in the pottery. There was an increase in the frequency of the coarse ware. Besides, some new pottery-forms and styles began to come up, for example, bowl with a stud-handle and black-and-red ware with white-painted designs.

By Period B, however, the decline of the Mature Harappan elements and a transition to some newer ones became very explicit. The Acropolis, warehouse and dockyard were things of the past. The fortifications too were not functional. Even the houses were now made of brickbats, collected from the earlier structures; no more was any fresh brick fired. Wattle-and-daub walls were found to suffice. All this signifies that urbanism was no more there. At the same time, it were the same Harappans, and not new comers, who were still occupying Lothal. This is clear from the fact that many of the ceramic forms were the same as in the Mature Phase, though the fabric became coarser and the painted designs less prolific. The usually convex-sided bowl began to have a carinated profile. The short stud, which had already made its appearance in Period A-IV, became elongated, while the stem part of the dish-on-stand began to squat. Changes were also noticed in other artefacts. For example, the long blades of chert — a material that had been imported from Rohri and was no longer available because of a steep fall in trade — were replaced with smaller blades of chalcedony, agate, etc. Perhaps for the same reason the cubical weights of chert, so diagnostic of the Mature Harappan Phase, were no longer in sight. However, to meet the need spheroid weights of sandstone and similar material were used. The burial practice and worship at 'fire-altars', which did not have to depend either on trade or on economic well-being, continued as before.

The story of this devolution is carried forward at Rangpur (Rao 1962-63). Maybe due to recurrent threat from floods some of the Lothalians moved out and settled at this site, hardly 50 km away. Over here, three occupational periods were identified, viz. I, II and III, with a further subdivision in Period II, called A, B and C (fig. 14.4). With Period I, yielding a pre-pottery microlithic assemblage, we are not concerned here. Period IIA yielded many of the characteristic items that go to make the Mature Harappan Civilization, such as cubical weights, use of bricks of typical Harappan size, etc. The pottery too had certain specific Harappan forms, though some local ones, like stud-handled bowls were also present. Rangpur IIB and IIC evinced a further decline in the material culture. Although Period IIB accounted for as thick a deposit as 3.6 m, no evidence was found for the use of kiln-fired bricks, nay even of sun-dried bricks. On the contrary, the presence of post-holes suggests the use of only wattle-and-daub structures. In such a decline who would bother about a system of drainage? It had become patently a village-scenario. Period IIC, however, showed some evidence of picking up. For example, the pottery was given a relatively better look by applying a lustrous red slip. The economic condition also seems to have somewhat improved, as reflected by the occurrence of some metallic objects. Though perforated jars, beakers and goblets were no longer to be seen, a few basically Harappan forms such as the dish-on-stand, heavy-rimmed jars, etc. continued. However, these too showed certain changes, for example, in the former case the stem became shorter. Amongst the painted designs some new elements were introduced, such as the running antelope, or bull with curly horns. A hangover from the Harappan times is also discernible from the graffiti on pottery, some of which resemble the signs of the Harappan script. On the religious side, the continued use of 'fire-altars' is also attested to. The occurrence of

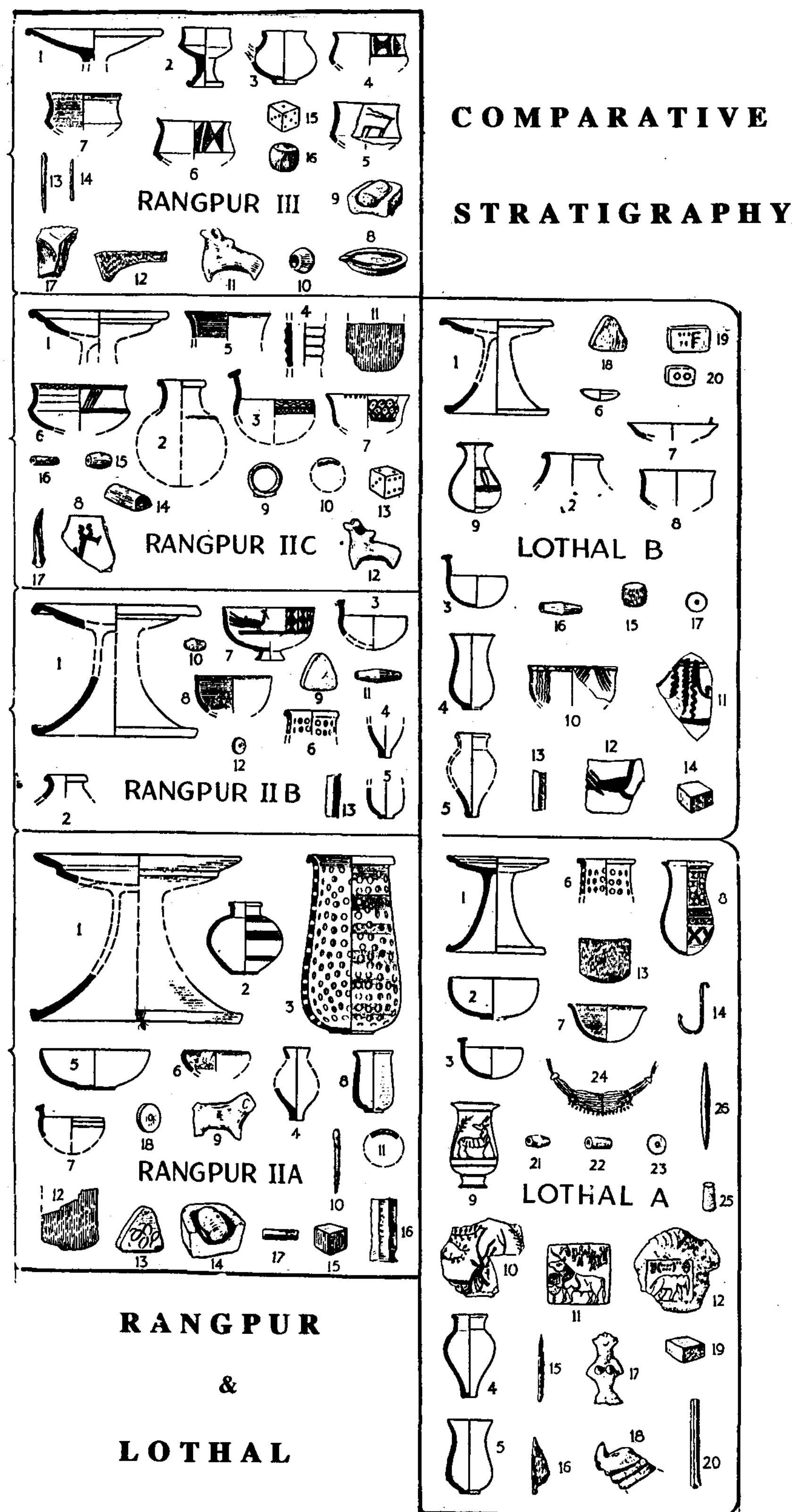

COMPARATIVE
STRATIGRAPHY
RANGPUR III
RANGPUR IIC
RANGPUR II B
RANGPUR IIA
LOTHAL B
LOTHAL A
RANGPUR
&
LOTHAL

Fig. 14.4

cubical dice marked with 1-6 dots in this subperiod (as also even in the succeeding Period III) shows the continuity of the game concerned right from the Mature Harappan times.

The small-scale pick-up evidenced in Period IIC, however, became more apparent in Period III. For example, the lustrous pottery (called the Lustrous Red Ware) became the dominant ceramic industry of this period. Likewise, paintings involving a variety of motifs, old and new, became relatively more prolific. The black-and-red ware with white-painted designs, which had started as early as Period IIA, became more conspicuous by its presence. Graffiti on pottery remind us of the struggling-to-survive Harappan signs. Use of mud bricks in house-building was also noticed. However, in spite of the foregoing signs of some advancement, Rangpur continued to be a small settlement. The region thereafter never witnessed urbanism for ages to come.

Surkotada, in Kutch, is a smaller settlement than Lothal and also differs from the latter in its layout (Joshi 1990). To recall, whereas Lothal had within a single fortified area an Acropolis on a high platform and the general habitation on the normal low ground, Surkotada had two juxtaposed fortified areas, both of the same size. The overall smallness of the settlement, with each part measuring no more than 60 x 60 m internally, might suggest that it was not quite like the other Harappan centres, but may have had some specific restricted function to perform.

The occupational strata at Surkotada, have been divided into three subperiods, viz. IA, IB and IC, without any break in between. While Subperiod IA yielded almost all the characteristic artefacts and pottery of the Harappan style, it also yielded, though in a very small percentage (7 per cent only), pottery-fabrics which are somewhat different: for example, a polychrome red-slipped ware; a reserved slipped ware; and a deep amber-red slipped ware. Subperiod IB was a continuum of IA, except for the fact that a coarse red ware dominated over the typically Harappan black-on-red, indicating that some change was in the offing. An altogether new pottery element that made its appearance in Subperiod IC was that of a white-painted black-and-red ware. Another notable point was the presence of a layer of ash between Subperiods IB and IC, but the fact that Harappan elements continued in IC clearly indicates that there was no break of occupation. For example, from this subperiod came a terracotta seal with Harappan script, a cubical chert weight, stone gamesmen, etched carnelian beads, etc.

That even Subperiod IC did not witness decline of the kind evidenced, for example, at Rangpur seems to be clear. For whatever reason, the site was abandoned around 2000 BC or slightly later, as shown by the radiocarbon dates for Subperiod IC: as many as three range around 2000 BC and one gets into the nineteenth century BC. It is only after this time that the real decline of the Harappan Civilization set in. (At Lothal the signs of decline had appeared slightly earlier, because of the local conditions, in particular because of the menace of floods which rendered the dockyard, wharf and warehouse out of commission and brought all trade to a grinding halt.)

The excavations at Dholavira, still (1994) in progress, have brought to light evidence of town-planning which is quite different from that known from any other Harappan city. Here the settlement was divided into three major parts, all juxtaposed to one another and provided with fortifications. The highest but smallest part has been named the 'Citadel'; a little lower but bigger than it, the Middle Town; and the largest but the lowest, the Lower Town.

The cultural remains at the site have been

divided into seven stages. While the earliest two stages, I and II, represented a pre-Mature Harappan *milieu*, Stages III, IV and V belonged to the Mature Harappan, though no doubt in the last-named stage some kind of degeneration was noticeable, particularly in the maintenance of the layout of the settlement in general and of the structures in particular. When, after a short break, the site was reoccupied (Stage VI), there were some noteworthy changes in the cultural equipment as, for example, the seals now had only the inscriptional part but were devoid of the usual animal or other figures. The Harappan weights, however, continued. In the pottery repertoire, while some of the Mature Harappan types did continue, the black-and-red ware made its appearance and so did some 'Jhukar' elements. There was a clear shrinkage in the size of the settlement and the Mature Harappan layout was also not to be seen.

The site was once again deserted, to be reoccupied after a century or so. This time (Stage VII) the layout had completely changed. All signs of urbanism had disappeared. The houses were now constructed of bricks robbed from earlier structures. These were circular, more or less like individual huts, and evinced no systematic planning of the settlement as a whole. It, however, needs to be added that the pottery-evidence indicates that the inhabitants of Stage VII were not basically different from those of Stage VI. At the time of writing, no radiocarbon dates for Dholavira are available to the author. However, on the basis of a comparison with Surkotada, Stage VII may be placed somewhere in the first quarter of the second millennium B.C.

The occupation at Rojdi (Possehl and Rawal 1989), divided into three phases called A, B and C, is bereft of many typical Mature Harappan pottery-forms. Likewise, as the excavator puts it, the 'distinctive Indus painting style is absent'. Town-planning and monumental structures like those at Dholavira or Lothal are also not there, though remnants of a circumambulating wall are present. Seals are wanting, but knowledge of writing is attested to by (just) one inscribed potsherd. There are quite a few other sites similar to Rojdi and Possehl, as stated elsewhere, has given the complex a new name, viz. 'Sorath Harappan'. One thing, however, deserves to be noted, namely that the radiocarbon dates do carry the beginnings of Rojdi back to ca. 2500 BC. On the basis of these dates, the habitation at Rojdi may have continued for some time even after 2000 BC.

While Rojdi and a few more of its ilk were regular settlements with stone structures and persisted for a long time, Saurashtra has thrown up many sites of late Harappan vintage which can be regarded only as 'small rural villages or dry-season pastoral camps'. A statistical analysis by K.K. Bhan (1989) of the sites in the State of Gujarat, including Kutch and Saurashtra, is very revealing. Thus, whereas there are only 20 Mature Harappan sites in the entire region, the number of sites ascribable to what he terms as 'the initial phase of Late Harappan' is as large as 152 and that of the 'final phase of the Late Harappan' is 79. Another noteworthy feature of this distribution pattern is that of the 20 Mature Harappan sites as many as 14 were in Kutch. On the other hand, Kutch has produced only 7 sites of 'initial Late Harappan phase' and just 2 of the 'final Late Harappan'. It seems that after having served as a corridor during the Mature Harappan period, Kutch was, as it were, abandoned, most probably because of the inhospitable terrain. Or, had the Rann also started silting up, making the region unworthy for seaborne trade?

Having discussed the decline and subsequent transformation of the Harappan Civilization in different regions of the subcontinent, we may now take stock of the legacy left

behind by this civilization. There are two aspects of this legacy, viz. (i) material, i.e. that which can be identified in terms of the actual remains available now or from sites dating from after the decline, and (ii) that non-material content which may be reflected in religious beliefs, social stratification, etc., in subsequent eras. For obvious reasons, the former would be more objective, whereas in the latter case an element of subjective interpretation is bound to creep in. While discussing the legacy, it would be well worthwhile also to consider items which are conspicuous by their absence in the cultural *milieu* that followed. This comparison, or better contrast, between what survived and what did not might perhaps help in identifying some of the causes of the decline.

The tangible items may be classified under certain categories such as those relating to agriculture and other subsistence pursuits, domestic chores and implements, ornaments and other related objects, transport, etc., as detailed below.

Though no agricultural field has been found which can be ascribed to the Mature Harappan phase, the pre-Harappan (or Formative Harappan) occupation at Kalibangan was found associated with an agricultural ploughed field (pl. XXVII A), and it is only reasonable to assume that the same kind of ploughing system also continued during the Mature Harappan times as well. As mentioned earlier, the characteristic feature of this field was a criss-cross pattern of the furrows. These lay in two sets, one running north-south and the other east-west. It is interestimg to note that this very kind of grid-patterned furrowing is in vogue even now in northern Rajasthan, Haryana, Panjab and western Uttar Pradesh (pls. XXVII B and C).

Along with the survival of the aforesaid system of field-ploughing may be mentioned the kind of ploughshare used during the Harappan times. Although a few terracotta examples had already been found at Mohenjo-daro and Harappa, these were broken and thus their identification remained a matter of doubt. Recent excavations at Banawali in Haryana have brought to light a very good terracotta model of a ploughshare (pl. XXXVII B). It consists of a curved beam and a sharp-ended 'shoe'. More or less similar ploughshare is still in use, not only in Haryana but also in the above-mentioned neighbouring regions.

A terracotta model of an axe fitted to a handle found at Mohenjo-daro (Mackay 1938: Vol. II, pl. CXII, 1) reminds one of the use of similar axes even nowadays in the countryside, for cutting firewood for cooking purposes as also for felling trees in the jungle. Similar to what are in use today are the fish-hooks found at almost all Harappan sites (fig. 8.1: 6).

The usual pattern of an average Harappan house (not of the more fastidious ones) was to have an open courtyard surrounded on three sides with living rooms and having a large frontal entrance into the courtyard through which bullock-carts and cattle could get in. In the courtyard have also been found troughs for keeping fodder and lower parts of large pots for holding water — all meant for the cattle. Immediately outside the house, flanking the gate were platforms evidently for people to sit on and chat. The roofs of the rooms were flat, made of wooden beams and reed-matting interspersed with earth. Cooking was usually done in the courtyard. This very pattern of house-plan still persists in the rural areas of Haryana, Panjab, etc.

Even certain items relating to cooking seem to have survived the millennia. For example, the present-day overground and underground *tandūrs* in northern Rajasthan, Haryana and Panjab may well go back to the pre-Harappan times. This is duly vouchsafed by the examples encountered at Kalibangan (pl. XXV B). The three-legged *pātā* (also called

chakalā) used for preparing the bread these days has surprisingly its counterpart in the Harappan *milieu* at Alamgirpur (fig. 7.3: 15). Even the saddle querns and mullers used these days in the villages are not much different from their Harappan ancestors.

Though the Harappan pottery-forms had started changing in the late phases and were no longer to be seen, except for a few examples, in the transformed cultural *milieu*, yet some forms have strangely survived till today. For example, the *kamaṇḍalu* (Mackay 1938: Vol. II, pl. LXVI, 22, 28) and small nozzled vessel used for feeding children with milk (pl. XII B) have their counterparts even today.

In the style of wearing ornaments and amongst toilet objects there are quite a few instances which seem to have continued through the ages. For example, the Marwari women of Rajasthan wear a large number of bangles on their lower and upper arms reminding one of the manner in which the famous dancing figure from Mohenjo-daro did. An engraving on a stone stele found at Banawali (pl. XLVIII A) shows a person wearing a *ḍamarū*-like armlet and wristlet, which reminds one of a similar ornament worn by womenfolk in Rajasthan and Gujarat (pl. XV B). The anklet (*pāyala*) worn by a bronze female figure from Mohenjo-daro (Mackay 1938: Vol. II, pl. LXXIII, 5) is still used by Indian women — sometimes disappearing from and at others re-emerging on the fashion scene. The gold hollow cone (called *chauk* in Hindi; Marshall 1931: Vol. III, pl. CXLVIII A, 2) is used even now on the forehead by the women of Rajasthan and Haryana. Referring to it Vats (1940: 442) says: 'By Hindus in northern India *chauks* are regarded among the essential ornaments which every man, rich or poor, has to give at the wedding of his daughter-in-law. This ornament is now worn chiefly on religious and important domestic ceremonies only.' Reference may also be made to girdles worn by the Harappan terracotta figurines (pl. XLVII C). While girdles have almost gone out of fashion in urban areas, one may still see them around the waist of womenfolk in rural north India. Spiral finger-rings, though of a rather universal character, may not be out of place to be mentioned in the present context.

Speaking of toilet object, one is specifically struck by at least two items. At Harappa had been found a copper set comprising three small items, viz. a tweezer, a pointed tiny rod and a somewhat flattish object (Vats 1940: Vol. II, pl. CXXV, 1; here fig. 8.1: 11). A set of three more or less similar objects of copper is still sold in the market. On enquiry it is learnt that the tweezer is used for plucking unwanted hair from the inner side of the eyelid and the pointed rod is used for cleaning the interspaces between the teeth. In the modern set, the third object has sometimes a tiny cup at its end and is said to be used for removing wax from inside the ears. The square-shaped comb of ivory, with a broad central part and teeth on opposite sides (Mackay 1938: Vol.II, pl. C,15), has its exact parallels even now, though in the urban areas plastic combs with teeth on one side only have replaced the same. In rural areas wood instead of ivory is the more common material, since the poor people can ill-afford the luxury of having ivory combs. Amongst other toilet objects mention may be made of antimony rods (e.g. Vats 1940: Vol. II, pl. CXXV, 33) and nail-parers (Vats *ibid.*, 39) which have their exact counterparts even today.

Amongst the objects relating to games, particularly for the children, the Harappans had a variety of terracotta figurines, discs, masks, whistles, rattles, etc. which are common even now, specially in rural and semi-urban areas. However, the game of chess, evidenced by the gamesmen (Rao 1985: Vol. II, fig. 103; pls. CCXVII B and CCXXI A), needs to be drawn specific attention to. The game is still played in India, although we do

not have so far archaeological evidence about it during the intermediary period. Likewise, the cubical dice marked with 1,2,3,4,5 and 6 dots respectively on its six faces, is used in certain games even now, though intermediary history is not yet known.

In the matter of transport, one would like to draw attention to terracotta models of carts and wheels found at most Harappan sites (e.g. Marshall 1931: Vol. III, pl. CLIV, 7 and 10). That the cart reconstructed from these clay specimens resembles the modern Sindhi cart had already been suggested by Marshall (1931: Vol. II, p. 554 and Vol. III, pl. CLIV, 11). However, no less interesting than the configuration of the vehicle is the fact that even the gauge is still the same. Wheeler's excavation at Harappa in 1946 brought to light the ruts, the distance between two corresponding ones being 1.08 m (Wheeler 1947, p. 85 and pl. XXXV B). This is identical with the gauge of the carts used in that area even now. Indeed, tradition dies hard! In this context one might also draw attention to a copper model of a vehicle found at Harappa (Vats 1940: Vol. II, pl. CXXV, 35). It reminds one of the *ekkā* used these days in eastern Uttar Pradesh, though the two are not absolutely identical.

We may now turn our attention to certain aspects of the Harappan Civilization which are relatively less tangible and about which only a reasonable guess can be made, viz. religion and social stratification. We have already dealt with these aspects in some detail in Chapters XI and XII respectively. Thus, we shall discuss here only such features as seem to have survived the ages and may be obsevered even today. This will naturally involve a good bit of repetition of the evidence.

Had the script been deciphered, one would have known what the inscription at the top of the famous seal has to say about the central figure, seated in a yogic posture and surrounded by animals (pl. XIV A). Marshall identified this figure with Śiva in his *Paśupati* (Lord of Animals) aspect, and thought that the three faces may be the forerunners of the later-day concept of the Trinity (Marshall 1931: Vol. I, 52-55). On the other hand, a recent paper avers that the figure may not even be a male and seeks to identify it as the 'Lady of the Beasts' (Dhavalikar and Atre 1989). However, the general consensus seems to favour the view propounded by Marshall.

In support of the prevalence of a kind of Śaivite religion during the Harappan times, Marshall identified certain objects as *liṅga*s (Marshall 1931: Vol. I, pl. XIV, 2,4; here pls. L C and D) and some others as probable *yonī*s (*ibid.*: pl. XIV, 6,8). While one cannot be too sure of these objects being *liṅga*s and *yoni*s, it is, at the same time, an idea which cannot be altogether brushed aside.

A cult of the Mother Goddess seems to be suggested by a large number of terracotta female figurines found in the Harappan context (Marshall 1931: Vol. III, pls. XCIV-XCV). This cult, however, seems to have been less prevalent in and even absent from some of the sites in the upper Ghaggar-Sarasvatī valley and Gujarat.

Worship of trees such as the pipal (*ficus religiosa*) and of tree-deities seems to be attested to in the Harappan Civilization. Likewise, there is indication also of animal-worship (Marshall 1931: Vol. I, 66-67).

The foregoing are some of the religious concepts of the Harappan Civilization which seem to have survived the millennia and may be found in vogue in India today. While the worship of Śiva, *liṅga*s and *yoni*s is rather universal, that of trees and animals seems to be more prevalent in rural areas as compared to the urban ones.

Animal-sacrifice is yet another religious practice which seems to have continued since the Harappan times. As mentioned earlier, a brick-lined sacrificial pit with bovine bones in it was found at Kalibangan (pl. XXXII A). In

further support of animal-sacrifice may be cited the engravings on a terracotta cake from the same site (pl. XXXII B). On one side is shown an animal with a noose around the neck, the rope being pulled by a person in front of it. On the other side is a figure that seems to be identifiable as a deity because of the typical head-dress. The overall portrayal seems to be that of an animal being led on to be sacrificed before a deity.

In the chapter on religion we referred to the practice of yogic *āsanas* by the Harappans. This is indicated by certain terracotta figurines which appear to be in yogic postures (Rao 1973, fig. 35; here fig. 14.5). If the identification of these terracotta figurines is correct, as it may well be, it would be interesting to note that this is another piece of legacy that has survived the ages. Though far removed in time from the third millennium BC to the second century BC, Patañjali's *Yogasūtra* speaks of eight steps in the yogic path, one of which relates to the *āsanas*. These help to purify and energize the human system, both physically and mentally. Amongst the other steps in the forward march to the goal, viz. Self-realization, is *dhyāna*, i.e. meditation. In the Harappan context, one may well recall the famous limestone figure (pl. IX) which, with its introvert eyes, seems to be in a meditative pose. The *Bhagavadgītā* (Chapter 6, verse 13), while expounding the method of meditation, uses the term '*sampreksya nāsikāgram*' which has been interpreted by authorities to mean fixing the gaze on either the 'tip' or the 'root' of the nose. Sometimes the term *bhruvor-madhye* has also been used, which clearly means the position between the eyebrows. This is the place of the *ājñā-chakra* (according to the Western mystic terminology, the seat of Christ-consciousness), where the mystic experiences all the visions and remains engrossed therein. Thus, there is good reason to suppose that the practice of yoga is a legacy handed down all the way from the Harappan times.

A kind of social stratification seems to have existed during the Harappan times. To recall, the Harappan settlement at Kalibangan is broadly divisible into three segments: a Citadel on the west, a Lower Town on the east — both of which were fortified, and an unfortified area to the south of the Citadel. The evidence discussed in some detail in Chapter XII indicates that there was in all likelihood a threefold division in the society, viz. a priestly class occupying the Citadel, a merchant-*cum*-farmer class dwelling in the Lower Town, and a much less privileged class living outside the fortified areas, to the south of the Citadel. The evidence from Lothal, Harappa and Mohenjo-daro also supports the existence of the kind of social stratification indicated at Kalibangan.

These divisions seem to have been based partly on religious grounds, as in the case of the priestly class inhabiting the Citadel, partly on agricultural activity and economic affluence as in the case of the merchant-*cum*-farmer class of the Lower Town, and partly on supposedly inferior kinds of jobs and economic deprivation as in the case of those living in the unfortified area at Kalibangan or in the so-called barracks in the shadow of the Citadel at Harappa.

While no doubt it is not fully justified to look at the past in the light of what obtains at present, it may also not be unreasonable to pose a question, viz. did the above-mentioned three classes give rise, in the course of time, to the three classes of later-day Indian society: the Harappan priestly class to the Brāhmaṇas, the merchant-*cum*-farmer class to the Vaiśyas and the underprivileged lower working class to at least some amongst the so-called Śūdra community? In the Harappan Civilization there is not much evidence of military equipment and, therefore, it would be unwarranted to visualize a separate warrior class in it. The Ksatriya class may, therefore, have come into being later on as and when the need arose.

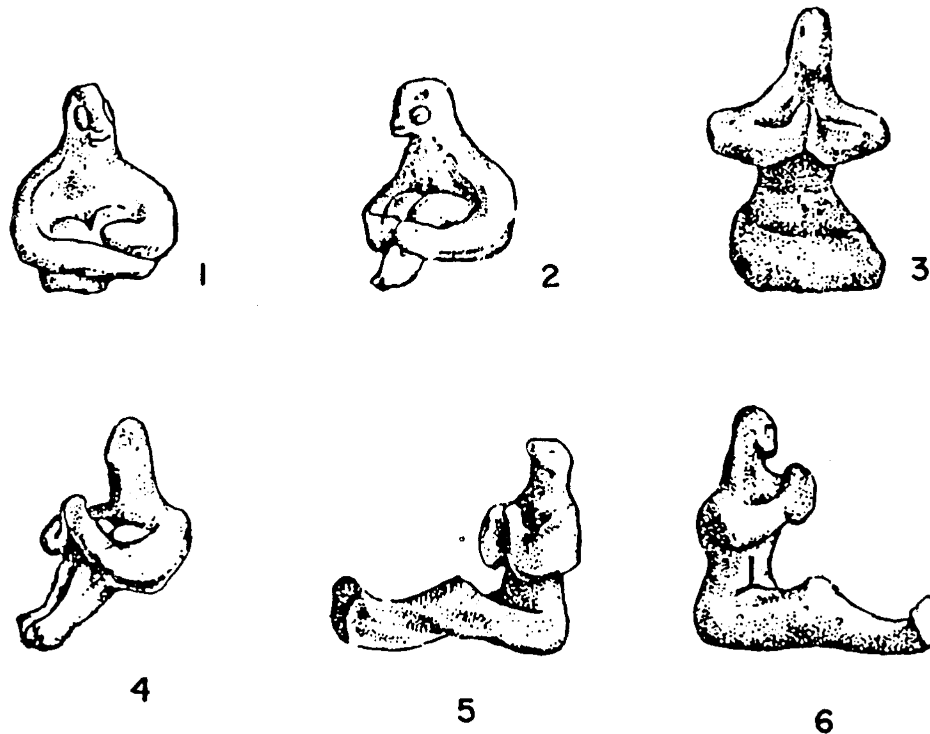


Fig. 14.5 Terracotta figurines in Yogic *āsanas*: 1-4 from Harappa; 5 and 6 from Mohenjo-daro

In the foregoing pages we have surveyed various items of the material culture, as also religious practices and social institutions which seem to have come down to us as a legacy from the Harappan Civilization. We may now take stock of items which seem to have declined and finally disappeared with the fall of the Harappan cities. The most noteworthy amongst these are the famous seals. Although a slightly different kind of seals did continue in the 'Jhukar' phase of Chanhu-daro, yet even these were not to be seen thereafter. In Panjab, Haryana, etc. in the north and in Gujarat in the south, there is no evidence of the use of seals after the middle of the second millennium BC.

Another noteworthy casualty was that of the weights. Although attempts have been made by scholars (e.g. Mainkar 1984) to suggest that the Harappan weight-system is enshrined in Kautilya's *Arthaśāstra*, there is absolutely no evidence of the typical cubical Harappan weights in the cultural *milieu* after the middle of the second millennium BC. The weights used in the Gaṅgā valley from about the middle of the first millennium BC are cylindrical. These do not seem to have been studied in detail and at least in the present state of our knowledge it is difficult to link them up with the Harappan weights. In any case, how does one account for the long gap of over one thousand years, from about the middle of the second to the middle of the first millennium BC? No site assignable to this interval has yielded any weight, either of the former type or of the latter.

Likewise, the Harappan system of measuring length was also discontinued. Thus, whereas there did exist regular graduated scales during the Harappan times, no such scale is available, not only for the intermediary period, viz. 1500-500 BC, but also during the early historical times, say from 500 BC to AD 200. That there was no graduated scale during this period is also indicated even by the *Arthaśāstra*, which records the measuring

of length with the help of the various parts of the human body, viz. *aṅgula* (finger-width), *vitasti* (span), *hasta* (cubit), etc. (The present author is not aware of graduated scales from any early historical site and would be grateful for information in this regard.)

There are some who hold that the Brāhmī script of the early historical times had been derived from the Harappan script. This too is highly debated and, as the evidence stands at present, it is a doubtful proposition.

Town-planning and use of kiln-fired bricks along with their standardization seem to have vanished with Harappan urbanism. Regular use of kiln-fired bricks reappeared only during the early historical times, but not only was the size different but the Harappan standardization was also no more to be seen.

A review of the Harappan legacy in terms of what has been completely lost and what has survived makes one thing clear, viz. what disappeared was related essentially to trade, commerce and consequential urban life, and what has continued is associated with agriculture, household chores, ornaments, transport, religious beliefs and practices and social stratification. These surviving traits are part and parcel of the common man's life and are not dependent on affluence in trade or urbanism. A critical study of this dichotomy of the legacy easily explains the archaeological phenomenon that we encounter after the fag-end of the Harappan Civilization, viz. the winding up of city-life and a backward move to villages of which hundreds have been recorded in Panjab, Haryana, Rajasthan and Gujarat. Sindh has not been as thoroughly combed. If done, it may perhaps also yield a similar picture.

To put the tale synoptically. The Harappan cities collapsed, the civilization declined, but the people survived it all, though bereft of their glorious past. Their great, great, great ... grandfathers had brought into being these cities — gradually from a village economy to that of a town and through great strides to that of a city. The decline of the civilization entailed an end of the cities and reversed the direction. To borrow a simile, the Harappan urbanism may be likened to a storm on the vast ocean of Indian time, which raged, held on for some time but finally subsided, leaving the waters as placid as before. Cities came and went, but the villages kept on for ever!

Appendix

IT IS TIME TO RETHINK

Some colleagues who happened to have a look at the draft of this book at one stage or another suggested that I must express my views on the much-debated issue regarding the Harappan Civilization *vis-a-vis* the Indo-Aryans. I told them that I was planning to write a separate book on that topic and it would not be possible to do justice to such vast problem in the short space available in the present book. In spite of my pleadings they insisted and hence this brief Appendix.

The question which, I believe, has been agitating the minds of all of us is: who were the authors of this highly advanced civilization of the third millennium BC? The Dravidians? The Indo-Aryans?* Or still some others? There can be several lines of enquiry—for example linguistic, archaeological, literary, inscriptional, astronomical, georaphical and so on. However, I shall take up only the more noteworthy of these. And even in doing so, I am afraid, I will have to recall, at the cost of repetition, some of the evidence already dealt with earlier in this book.

A very fascinating line of enquiry is that provided by linguistics. On the basis of the fact that many of the European languages, such as Greek and Latin, on the one hand and Asian languages, like Persian and Sanskrit, on the other have a large number of words akin to one another, it has been postulated that at some point of time the speakers of these languages formed a group, which has been designated as the Indo-European group. It has also been assumed that the original home of these Indo-European-language-speaking people was somewhere in Central Asia from where one group went westwards, spreading all over Europe, while another travelled southeastwards, reaching India *via* Iran. The languages concerned have such common vocabulary as words for parts of the body, close family relationships, etc. and show such similar syntactical behaviour that it would be unjustified to deny this commonality.

With this as the starting point, and finding that certain words in the *Ṛigveda* and other Vedic texts do not fit into the postulated Indo-European language-family, scholars have opined that these new words must have found their way into Sanskrit from a pre-existing language. Some of the words concerned are like *nīra* (water), *mīna* (fish), etc.,

* The terms Dravidian and Indo-Aryan were once used in a racial sense, but are now mostly used in the linguistic.

and since these words occur in the Dravidian languages, it has been argued that on arrival in India the Indo-Aryans must have encountered the Dravidians. This nineteenth-century theory of the Indo-Aryans overrunning the Dravidians found a ready-made archaeological prop when in the 20s of this century the remains of an altogether unknown civilization — the Harappan Civilization — were brought to light. It was thus made out that the Harappans were the Dravidians and the 'barbaric' Indo-Aryans not only destroyed them but in the process also borrowed some of their words. Here it may be of interest to note that even amongst Dravidianists there is no agreement on the number of words borrowed. While some put the figure at a little over a thousand, others accept hardly 25 present of these words as having been derived from a Dravidian source.

In a similar manner a case has been made out to explain certain other words occurring in the Vedic texts as coming from an Austro-Asiatic source and the Munda language has been thought to be the most likely creditor. Not finding the source of some of the words in either the Dravidian group or in the Austro-Asiatic family, the existence of some yet-unknown sources has also been postulated.

To my mind the exact number of the borrowed words is irrelevant to the issue. If even half-a-dozen words are definitely identifiable as coming from Dravidian/Munda sources, that should be good enough to accept a borrowing. But the whole issue hinges on the question: how exactly did this borrowing take place? Did the Sanskrit-speaking people borrow the words concerned from some people whom they overran, as has been made out by assuming that incoming hordes of the Indo-Aryans overran the Harappans? Or did the Sanskrit-speaking people borrow the Dravidian and Munda words from their neighbours with whom they had occasion to come in contact? This second hypothesis has a lot to recommend itself. If, for argument's sake, it turns out that the Harappans themselves were speaking Sanskrit, they could have easily borrowed the Dravidian and Munda words from their neighbours respectively on the south and east, who are not unlikely to have spoken these languages. In Chapter III we have shown that there did exist neolithic cultures in the south as well as in the east, called respectively the Southern Neolithic Culture and Eastern Neolithic Culture. Both these were contemporary with the Harappan Civilization at one point of time or another. There is also evidence of the Harappans having come into contact with these neolithic people. For example, the Kolar mines, located in a Dravidian-speaking area, are thought to have been the source of gold for the Harappans. Likewise, we know that the Harappan population included a marginal number of proto-Austroloids. In fact even the Mongoloids are represented, howsoever scantily, in the Harappan population. Thus, one need not be surprised that if the Harappans did speak Sanskrit, one day someone may come up with the identification of some words from that source as well.

The main question then is: Did the Harappans speak Sanskrit? Were they themselves the Indo-Europeans?

As stated earlier (pp. 257-58), Mortimer Wheeler, on discovering in 1946 a fortification-wall around a part of the settlement at Harappa and on being apprised by a Sanskrit scholar of the occurrence of the word *puraṁdara* as meaning 'the destroyer of forts', declared (Wheeler 1947: 82): 'On circumstantial evidence Indra [symbolic of the Vedic Aryans] stands accused [of destroying the supposedly non- and pre-Aryan Harappan Culture]'. This fitted very well into two pre-existing theories, viz. a nineteenth-century theory enunciated by Max Muller and tenaciously adhered to by others that the *Ṛgveda*

is to be dated to ca. 1200 BC, and another advanced by mid-twenteeth century archaeologists that the Harappan Civilization came to a sudden end around 1500 BC. Both these theories are now obsolete. It is no longer accepted by scholars of Sanskrit literature that the *Ṛigveda* is as late as 1200 BC nor do archaeologists uphold the view of Mortimer Wheeler that the Harappan Civilization met a sudden end, much less at the hands of the Aryans. Wheeler's reference to the skeletons found at Mohenjo-daro as evidence of a massacre by the invaders has been proved to be wrong. The skeletons belong to different strata of the site and not to the uppermost level, which would have been the case had it been a massacre resulting in the abandonment of the site. Further, some of the skeletons bore cut-marks which had been healed, suggesting that the death did not take place immediately as a result of these injuries. Dales (1964) has rightly dubbed this as a 'mythical massacre'.

While there may have been different causes for the abandonment of different sites — for example, Mohenjo-daro may have suffered heavily on account of Indus floods or Kalibangan may have been given up because of the drying up of the Ghaggar, the evidence from most of the other sites, as discussed in great detail in Chapter XIV, indicates that there was a gradual devolution of the cultural constituents from about the beginning of the second millennium BC. To recall just one example. In the upper levels at Lothal, both the dockyard and the warehouse had gone out of commission and so also the fortifications. The well laid-out streets had been encroached upon by houses, which were now built with brickbats robbed from the earlier structures. The devolution noted at Lothal was further continued at Rangpur, resulting finally in a cultureal *milieu* which can no longer be recognized as Harappan. Likewise, the shift of the scenario from the middle Ghaggar to its upper reaches and thence to the upper Gaṅgā-Yamunā *Doāb* tells the same story. The cases of this decline were manifold: climatic aberrations and the wearing out of the landscape, both resulting in a fall of agricultural production, and not the least a sharp decline in trade, both internal as well external. Certainly no invaders can be invoked for an assumed sudden end. Indeed, the supporters of the Aryan-invasion theory have not been able to cite even a single example where there is evidence of 'invaders', represented either by weapons of warfare or even of cultural remains left by them. As has been demonstrated in the chapter on 'Decline and Legacy', even the supposedly alien cultures like those labelled as Jhukar and Cemetery H are regional transformations, respectively in Sindh and Panjab, from the Harappan Civilization itself, as was the case with the Rangpur phase in Gujarat.

Now whereas a refutation of Wheeler's theory is welcome inasmuch as it absolves the Indo-Aryans of the responsibility of destroying the Harappans, this refutation by itself does not in any way establish that they themselves were the authors of this civilization. We thus come back to square one in so far the authorship question is concerned.

Right from the time of the discovery of the Harappan Civilization in the early 20s of this century attempts have been made to identify the language spoken by the Harappans, since that would have helped in tracking down the authors. More than two dozen serious attempts have been made to decipher the inscriptions on the Harappan seals and other allied material. Two major theses have been advanced. According to one, the language involved was proto-Dravidian, while according to the other, it was Sanskrit or a kind of proto-Sanskrit. In my various papers published since the 50s I have reviewed the claims of Dravidianists such as Asko Parpola and I. Mahadevan and of Sanskritists like S.R. Rao and M.V.N. Krishna Rao and have

wshown that none of them has been able to hit the mark. I have also demonstrated as to where they have faulted in their methodology which has led to unacceptable results (see pp. 207 ff.). Any valid decipherment of the script should pass at least two tests: one, that the value once assigned to any given sign is not altered according to exigencies and two, that the language arrived at conforms to the principles of the language concerned. Thus, while no aspertions are cast on any of the scholars, let is be clearly re-stated that all attempts to identify the language of the Harappans have not helped us so far in identifying the authors of that civilization.

Then how do we go about next?

It has been stated by the supporters of the Dravidian theory that the Aryan invaders chased away the Dravidian-speaking Harappans to the southern part of India where they are now located and only a handful of them were left behind who now dwell in a small pocket in Baluchistan, speaking the Brahui dialect. Those who hold this view have squarely to answer: If the Aryans pushed the Harappans all the way down to South India, how come there are no Harappan sites at all in that region? The southernmost limit of the Harappan regime is the upper reaches of the Godāvarī. There is no Harappan site south of that. Secondly, why only a handful of the Dravidian-speaking people were left behind in Baluchistan and not in the main area occupied by the Harappans, viz. the Indus-Sarasvatī valleys and even in Gujarat? In this context it may be well worth noting that some scholars are of the view that the Brahui-speaking Baluchis had migrated to that region from elsewhere instead of being the left-overs from a settled Dravidian-speaking population indigenous to that area. Some others even doubt an intimate relationship between Brahui and the Dravidian languages and hold that the former may well be regarded as 'Modern Colloquial Eastern Elamite'.

While the foregoing argument may be all right in countering the Dravidian hypothesis for the Harappan Civilization, by itself it does not lead us to any positive conclusion. We have, therefore, to examine other kinds of evidence.

A variety of arguments have been advanced to say that the Harappans are unlikely to be the Indo-Aryans. Here we shall consider the three most salient ones, viz. (i) 'glaring disparity' between the cultures represented by the Harappan remains and the Vedic texts; (ii) absence of the horse from the former; and (iii) chronological gap between the two.

Let us begin with the much-emphasized disparity between the Harappan Civilization on the one hand and the civilization depicted in the *Veda*s on the other. It has been argued that the Vedic civilization was essentially rural and had no urban component whatsoever and since the Harappan Civilization is essentially urban the two cannot be correlated. This view is based, to say the least, on an inadequate study and misinterpretation of the Vedic texts. These do refer to towns, fortifications, sea-voyages and trade — all manifestations of urbanization.

The word *pur* occurs very frequently in the *Ṛigveda* and conveys the sense of a fortified town. Sometimes it is stated to have had even a hundred walls (*śatabhuji*), the word hundred evidently standing for a large number (as found, for example, at Dholavira, a Harappan site in Gujarat). Perhaps one may cite here the following from the *Ṛigveda*:

> *...varma sīvyadhvaṁ bahulā prithūni; puraḥ kriṇudhavamāyasīradhriṣṭā* ... (*RV* X. 101.8)

Herein the poet appeals to the gods: 'stitch ye the coats of armour, wide and

many; make iron* forts, secure from all assailants' (Griffith 1973 [reprint] : 615).

Likewise, there is ample evidence of sea-voyages, sea-faring ships and sea-trade. To make the sea-voyage easily possible, ships with three masts (*tirbandhur*) and/or ten oars (*daśāritra*) and even a hundred oars (*śatāritra*) were commissioned. The wealth thus achieved seems to have been tremendous, as may be seen from the following:

rāyaḥ samudrānśchaturo asmabhyam soma viśvataḥ; ā pavasva sahasriṇaḥ (*RV* IX. 33.6)

'From every side, O Soma, for our profit, pour thou forth four seas filled full of riches thousandfold.' (Griffith 1973 [reprint]: 483).

As regards political set-up, well organized administration, etc., one may note terms like *rāṣṭra, rājā, jyeṣṭharāj, samrāṭ, janarāj*, which refer to kingdoms and rulers of different statuses; terms for councils and assemblies such as *saṁsad, sabhā, samiti*; and terms for various categories of administrative posts like *adhyakṣa, dūta, nidhāpati, rathaspati, senānī*, etc.

From the foregoing it would be abundantly clear that the Vedic society was neither nomadic nor even in a mere rural stage, as has been assumed by many. It had long passed those stages and was dealing with kings and kingdoms, was having an organized administrative machinery, had fortified towns and was engaged in both land- and sea-trade. Just as there were cities, towns and villages in the Harappan ensemble (as there are even today in any society) there were both rural and urban components in the Vedic times. Where then is the 'glaring disparity' between the cultureal levels of the Harappan and Vedic societies?

And now to the horse. It has often been stressed: 'No horse, no Aryans'. And rightly too, since it is difficult to visualize a material culture of the Aryans that does not include the horse which figures so prominently in the Vedic texts. Hence the position has to examined in some detail.

A terracotta figure found by Mackay in his excavations at Mohenjo-daro was identified by him as that of the horse. This identification has been accepted by many but not all. However, in recent years a lot of new light has been thrown on the issue. Lothal has yielded not only a terracotta figure of the horse but also the second right upper molar of that animal. To recall what Bholanath of the Zoological Survey of India has stated, the tooth 'resembles closely with that of the modern horse and has pli-caballian (a minute fold near the base of the spur or protocone) which is well distinguished character of the cheek of the horse' (in S.R. Rao 1985: 641).

Surkotada has yielded quite a few bones of the horse, which have been identified as such not only by A. K. Sharma but also by Sandor Bokonyi, an internationally recognized authority on the anatomy of the horse. To repeat one of his significant observations: 'The occurrence of true horse (*Equus Caballus* L.) was evidenced by the enamel pattern of the upper and lower cheek and teeth and by the size and form of incisors and phalanges (toe bones). Since no wild horses lived in India in post-Pleistocene times, the domestic nature of the Surkotada horses is **undoubtful**.' Horse remains have been identified at Kalibangan too; and Bholanath also states that an earlier collection from Harappa examined by him did contain remains of the true horse. However, no horse-bones have so far been reported from the current excavations at the site. Finally, attention must be drawn to the discovery of terracotta figurines of the horse by Jarrige and his colleagues (in press) in the

* The word *ayas* used in the text stands for metal in general and not iron. At a later stage two separate words were used, viz. *kriṣṇāyasa* and *lohāyasa*, denoting respectively 'black metal' i.e. iron and 'red metal' i.e. copper.

Harappan levels at Nausharo in Pakistan. Thus, the horse has cleared the first hurdles, though no doubt one would like to have more and more examples.

To come to the chronological gap. As is well known, it is Max Muller's dating of the *Ṛigveda* that has become the basis for those who hold that the Vedic Aryans came to India from outside and that this event took place after the middle of the second millennium BC. However, Max Muller's method itself is questionable. In brief, assuming that the *Sūtras* belonged to ca. 600-200 BC and assigning an ad-hoc duration of two centuries to each of the preceding literary periods, he held that the *Ṛigveda* may be dated to ca. 1200 BC. This ad-hocism may have had its value at a time when hardly anything was known in the West about the Vedic texts, but the results arrived at cannot be taken as the gospel truth. Indeed, later in his career Max Muller himself had begun to feel shaky about his dating and admitted: 'Whether the Vedic hymns were composed [in] 1000, or 1500, or 2000, or 3000 years BC, no power on earth will ever determine' (Muller 1979 [reprint] : 91).

Quite in contrast to Max Muller, there are scholars who hold that the *Ṛigveda* is as early as the fourth millennium BC. Their thesis is based on astronomical calculations. For example, a passage in the *Aitareya Brāhmaṇa* refers to the shifting of the vernal equinox from Mrigaśiras to Rohinī, which event, according to these experts, would have taken place around 3500 BC. This would place the *Rigveda* in the fourth millennium BC. Not being a student of astronomy, I am not in a position to offer any opinion on this dating. At the same time, I do not see any reason to reject it either, without a careful and unbiassed examination of this and other astronomical data provided by the Vedic texts.

Anyway, I would like to revert to archaeology and draw attention to the well known Boghaz Keui inscription from western Asia. It is dated to the 14th century BC and refers to the Vedic deities Indra, Mitra, Nāsatya and Varuṇa as being witnesses to a treaty between the Hittite king Suppiluliuma and Mitanni king Matiwaza. The question then is: Did these Indra-Varuna worshippers occupy the West Asian region first and then move on to India or were they originally from India and its neighbourhood and later reached West Asia, or did they go to both these regions from a third place? Since we do not have so far any evidence of the Indra-Varuna worshippers of that vintage in any third place, the last-named alternative has to be kept on hold for the time being. Further, since the Indra-Varuṇa worshippers do not enjoy continuity in the West Asian region, greater chances are that they had gone to that region from the Indian side. A similar scenario is also suggested by another inscription found in that region, which refers to horse-training terms like *ekavartana, trivartana*, *pañchavartana*, etc. so specifically Sanskritic. Thus, the presence of Indra-Varuṇa worshippers, i. e. the Indo-Aryans, in India has got to be well before the middle of the second millennium BC. How much earlier is anybody's guess.

We may now take up the geographical aspect of the issue. The texts concerned give a pretty good idea of the region occupied by the Vedic people. While in the east the main life-stream was the Sarasvatī, the people were also familiar with the Yamunā and Gaṅgā. Moving westwards, almost all the rivers from the Śutudrī (modern Sutlej) to Sindhu (Indus) are mentioned: the Vipaś (Beas), Paruṣṇī (Rāvī), Asiknī (Chenāb), Vitastā (Jhelum), etc. Further west, we come across the Kubhā, Krumu and Gomtī, identified respectively with the Kabul, Kurram and Gomal, all being western tributaries of the Indus. While the *Aitareya Brāhmaṇa* refers to Gandhāra (modern Kandahar region), the *Atharva Veda* mentions Balhika which is none other than the Balkh area in Afghanistan. It is thus clear that the Vedic geography coincides

with eastern and northern parts of present-day Afghanistan, practically the whole of Pakistan, and Panjab, Haryana, northeastern Rajasthan and northwestern Uttar Pradesh in India. In this context, it is important to note that this very region was the domain of the Harappan Civilization. In the northwest we are familiar with the site of Shortughai in Afghanistan, which was a full-fledged seat of the Harappans (not a mere trade-contact site) and in the upper Gaṅgā-Yamunā *Doāb* in the east we have the site of Alamgirpur. Thus, geography does not stand in the way of a correlation between the Vedic and the Harappan periods. As a matter of fact, it establishes an equation which ought to be of great significance if other factors also point that way.

In the context of this debate as a whole, one would like to refer to an important observation made by Hemphill and his colleagues (1991: 137): 'As for the question of biological continuity within the Indus Valley, two discontinuities appear to exist. The first occurs between 6000 and 4500 BC and is reflected by the strong separation in dental non-metric characters between neolithic and chalcolithic burials at Mehrgarh. The second occurs at some point after 800 BC but before 200 BC. In the intervening period, while there is dental non-metric, craniometric, and cranial non-metric evidence for a degree of an internal biological continuity, statistical evaluation of cranial data reveals clear indication of interaction with the West specifically with Iranian Plateau'. It would thus be seen that although there was some interaction between the Iranian Plateau and the Indus Valley, **there was basic biological continuity within the Indus Valley from ca. 4500 BC to ca. 800 BC**. In such a situation how can one envisage the entry of hordes and hordes of Vedic Aryans who are supposed to belong to an alien, non-Harappan biological group, around the middle of the second millennium BC? The only large-scale-entry points are either around 4500 BC or after 800 BC. Since even Max Muller's followers would hesitate to force the entry of the Aryans into India after the latter date (i.e. after 800 BC), is it not time to **rethink** about the entire issue? Could the chalcolithic people of Mehrgarh, who in the course of time evolved into Bronze Age Harappans, themselves have been the Indo-Aryans? These chalcolithic people had relationship with areas now comprising northern Afghanistan, northeastern Iran and even southern part of Central Asia — which area may have been the habitat of the Aryans prior to the composition of the *Ṛigveda*.

From the foregoing rapid survey it would be clear that neither the alleged disparity between the Vedic and Harappan cultures is all that pronounced as it has been made out to be nor are geographical considerations a bar nor is even the chronological gulf so wide as to deny to the Aryans an early presence on the subcontinent. However, all this evidence, though fairly strong in itself, needs to be stregthened by more clinching data, which can come only from a satisfactory decipherment of the Harappan script. May we hope for the best?

BIBLIOGRAPHY

Agrawal, D.P. 1964. Harappa Culture: New Evidence for a Shorter Chronology. *Science*, 143:950-52.

—— 1982. *The Archaeology of India.* Scandinavian Institute of Asian Studies Monograph Series, no. 46. London: Curzon Press.

Agrawala, R.C. and Vijaya Kumar. 1982. Ganeshwar-Jodhpura Culture: New Traits in Indian Archaeology. In G.L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 125-34. New Delhi: Oxford and IBH Publishing Co.

Alekseev, G.V., Ju. V. Knorozov, A.M. Kondratov and B. Ja. Volcok. 1965. *Predvaritel' noe Soobscenie ob issledovanii protoinduskih tekstov*, Moskva (English transl. H. Ch. Pande, Field Research Projects, Coconut Grove, Florida, 1969).

Allchin, B. and F.R. Allchin. 1982. *The Rise of Civilization in India and Pakistan*. Cambridge: Cambridge University Press.

Allchin, F.R. 1960. *Piklihal Excavations*. Hyderabad: Government of Andhra Pradesh.

—— 1961. *Utnur Excavations*. Hyderabad: Government of Andhra Pradesh.

Allchin, F.R. and J.R. Knox. 1981a. Preliminary Report on the Excavation at Tarakai Qila (1978-79). In H. Haertel (ed.), *South Asian Archaeology 1979*, pp. 245-50. Berlin.

—— 1981b. Preliminary Report on the Excavations at Lewan (1977-78). In H. Haertel (ed.), *South Asian Archaeology 1979*, pp 41-44. Berlin.

Asthana, S. 1976. *History and Archaeology of India's Contacts with Other Countries.* Delhi.

—— 1979. Indus-Mesopotamian Trade: Nature of Trade and Structural Analysis of Operative System. In D.P. Agrawal and D.K. Chakrabarti (eds.), *Essays in Indian Protohistory*, pp. 31-47. Delhi: B.R. Publishing Corporation.

—— 1984. The Place of Shahdad in Indus-Iranian Trade. In B.B. Lal, S.P. Gupta and S. Asthana (eds.), *Frontiers of the Indus civilization*, pp. 353-61. New Delhi: Books and Books.

—— 1985. *Pre-Harappan Cultures of India and the Borderlands.* New Delhi: Books and Books.

Banerji, N.R. and J.L. Sharma. 1969. Neolithic Tools from Nepal and Sikkim. *Ancient Nepal*, 9:53-58.

Barua, B.M. 1946. The Indus Script and the Tantric Code. *Indo-Iranica*, 1:15-21.

Bhan, K.K. 1989. Late Harappan Settlements

of Western India, with Specific Reference to Gujarat. In J.M. Kenoyer (ed.), *Old Problems and New Perspectives in the Archaeology of South Asia*, pp. 219-42. Wisconsin Archaeological Reports, Vol. 2.

Bhan, S. 1971-72. Siswal: A Pre-Harappan Site in Drishadvati Valley. *Puratattva*, 5:44-46.

—— 1975. *Excavation at Mitathal (1968) and other Explorations in the Sutlej-Yamuna Divide*. Kurukshetra: Kurukshetra University.

Bholanath. 1959. Remains of the horse and Indian elephant from the protohistoric site of Harappa (West Pakistan). *Proceedings of First All India Congress of Zoologists*, pt. 2, pp. 1-14.

Bibby, T.G. 1972. *Looking for Dilmun*. Harmondsworth: Penguin.

Bisht, R.S. 1982. Excavations at Banawali: 1974-77. In G. L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 113-124. New Delhi: Oxford and IBH Publishing Co.

—— 1987. Further Excavation at Banawali: 1983-84. In B.M. Pande and B. D. Chattopadhyay (eds.), *Archaeology and History: Essays in Memory of Shri A. Ghosh*, Vol. I, pp. 135-56. Delhi: Agam Kala Prakashan.

—— 1989. A New Model of the Harappan Town Planning as Revealed at Dholavira in Kutch: A Surface Study of its Plan and Architecture. In B. Chatterji (ed.), *History and Archaeology*, pp. 397-408. Delhi: Ramanand Vidya Bhavan.

—— 1991. Dholavira: New Horizons of the Indus Civilization. *Puratattva*, 20:71-82.

—— 1994a. Secrets of the Water Fort. *Down to Earth*, pp. 25-31, New Delhi, May 15.

—— 1994b. Dholavira. In J.P. Joshi and R.S. Bisht, *India and the Indus Civilization*, pp. 23-31. New Delhi.

Casal, J. -M. 1964. *Fouilles d'Amri*, 2 vols. Paris: Commission des Fouilles Archeologique.

—— 1966. Nindowari: A Chalcolithic site in South Baluchistan. *Pakistan Archaeology*, 3:10-21.

—— 1979. Amri: An Introduction to the History of the Indus Civilization. In D.P. Agrawal and D. K. Chakrabarti (eds.), *Essays in Indian Protohistory*, pp. 99-112. Delhi: B.R. Publishing Corporation.

Chakrabarti, D.K. 1990. *The External Trade of the Indus Civilization*. Delhi: Munshiram Manoharlal Publishers Pvt. Ltd.

Chaolong, Xu. 1991. The Cultural Links Over the Himalaya Range in the Prehistoric Period. (Cyclostyled paper, informally circulated.)

Chatterjee, B.K. and G.D. Kumar. 1963. Racial elements in post-Harappan skeletal remains of Lothal. *Anthropology on the March*, pp. 104-10, Madras.

Chitalwala, Y.M. 1984. The Problem of Class Structure in the Indus Civilization. In B.B. Lal, S.P. Gupta and S. Asthana (eds.), *Frontiers of the Indus Civilization*, pp. 211-15. New Delhi: Books and Books.

Chowdhury, K.A. and S.S. Ghosh. 1951. Plant remains from Harappa 1946. *Ancient India*, 7:3-19.

Cleuziou, S. 1984. Oman Peninsula and its relations eastward during third millennium. In B.B. Lal, S.P. Gupta and S. Asthana (eds.), *Frontiers of the Indus Civilization*, pp. 371-94. New Delhi: Books and Books.

Cleuziou, S. and M. Tosi. 1989. The Southeastern Frontier of the Ancient Near East. In K. Frifelt and P. Sorensen (eds.), *South Asian Archaeology 1985*, pp. 14-47, London: Cirzon Press.

Cleuziou, S. and B. Vogt. 1985. Tomb A at Hili North (United Arab Emirates) and its material connections to Southeast Iran and the Greater Indus Valley. In J. Schotsman and M. Taddei (eds.), *South Asian Archaeology 1983*, pp. 249-77. Naples: Instituto Universitario Orientale.

Costantini, L. 1984. The Beginning of Agriculture in the Kachi Plain. The Evidence of Mehrgarh. In B. Allchin (ed.), *South Asian Archaeology 1981*, pp. 29-33. Cambridge: Cambridge University Press.

—— 1990. Harappan Agriculture in Pakistan: The Evidence of Nausharo. In M. Taddei (ed.), *South Asian Archaeology 1987*, pp. 321-32.Rome: IsMEO.

Dales, G.F. 1964. The Mythical Massacre at Mohenjo-daro. *Expedition*, 6(3): 36-43.

—— 1979a. The Balakot Project: Summary of Four Years Excavations in Pakistan. *Man and Environment*, 3:45-53.

—— 1979b. The Balakot Project: Summary of Four Years Excavations in Pakistan. In M. Taddei (ed.), *South Asian Archaeology 1977*, pp. 241-73, Naples: Instituto Universitario Orientale.

—— 1981. Reflections on Four Years of Excavations at Balakot. In A.H. Dani (ed.), *Indus Civilization: New Perspectives*, pp. 25-32. Islamabad: Quaid-i-Azam University.

Dales, G.F. and J.M. Kenoyer. 1977. Shell-working in Ancient Balakot, Pakistan. *Expedition*, 19:13-19.

—— 1986. *Excavations at Mohenjo-daro, Pakistan: The Pottery*. Philadelphia: University Museum.

—— 1989. Excavation at Harappa-1988. *Pakistan Archaeology*, 24:68-175.

—— 1991. Summaries of Five Seasons of Research at Harappa (District Sahiwal, Punjab, Pakistan) 1986-90. In R.H. Meadow (ed.), *Harappa Excavations 1986-1990*, pp. 185-262. Madison, Wisconsin: Prehistory Press.

Dales, G.F. and C.P. Lipo. 1992. *Explorations on the Makran Coast, Pakistan: A Search for Paradise*. Berkeley: University of California.

Dani, A.H. 1970-71. Excavations in the Gomal Valley. *Ancient Pakistan*, 5:1-177.

—— 1988. *Recent Archaeological Discoveries in Pakistan*. Paris: Unesco.

De Cardi, B. 1965. Excavations and Reconnaissance in Kalat, West Pakistan: The Prehistoric Sequence in the Surab Region. *Pakistan Archaeology*, 2:86-182.

Delmas, A.B. and M. Casanova. 1990. The Lapis Lazuli Sources in the Ancient East. In M. Taddei (ed.), *South Asian Archaeology 1987*, pp. 493-505. Rome: IsMEO.

Deraniyagala, S.U. 1992. *Prehistory of Sri Lanka: An Ecological Perspective*. Department of Archaeological Survey: Government of Sri Lanka.

Dhavalikar, M.K. 1991. Merchant Traders of Western India. *The Indian Ocean Review*, 4(4):10 ff.

—— 1995. *Cultural Imperialism: Indus Civilization in Western India*. New Delhi: Books and Books.

Dhavalikar, M.K. and S. Atre. 1989. The Fire Cult and Virgin Sacrifice: Some Harappan Rituals. In J.M. Kenoyer (ed.), *Old Problems and New Perspectives in the Archaeology of South Asia*, pp. 193-205. Madison: University of Wisconsin.

Dikshit, K.N. 1979. Old Channels of Ghaggar in Rajasthan—Revisited. *Man and Environment*, 3:105-06.

—— 1982. Hulas and the Late Harappan Complex in Western Uttar Pradesh. In G.L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 339-51. New Delhi: Oxford and IBH Publishing Co.

—— 1984. Late Harappa in Northern India. In B.B. Lal, S.P. Gupta and S. Asthana (eds.), *Frontiers of the Indus Civilization*, pp. 253-69. New Delhi: Books and Books.

Dupree, L. 1972. Prehistoric Research in Afghanistan 1959-66. *Transactions of American Philosophical Society*, 62:1-84.

—— 1981. Notes on Shortughai: An Harappan site in northern Afghanistan. In A.H. Dani (ed.), *Indus Civilization: New Perspectives*, pp. 103 ff. Islamabad: Quaid-i-Azam University.

Durante, S. 1979. Marine Shells from Balakot, Shahr-i-Sokhta and Tepe Yahya: Their significance for Trade and Technology in Ancient Indo-Iran. In M. Taddei (ed.), *South Asian Archaeology 1977*, pp. 317-44. Naples: Instituto Universitario Orientale.

During-Caspers, E.C.L. 1965. Further Evidence of cultural relations between India, Baluchistan and Iran and Mesopotamia in Early Dynastic Times. *Journal of Near Eastern Studies*, 24:53-56.

—— 1969. *Archaeological Evidence for Maritime Trade in the Persian Gulf in the Third Millennium BC*. Ph.D. Dissertation, London University.

Durrani, F.A. 1981a. Indus Civilization: Evidence West of the Indus. In A.H. Dani (ed.), *Indus Civilization: New Perspectives*, pp. 133-38. Islamabad: Qaid-i-Azam University.

—— 1981b. Rehman Dheri and the Birth of Civilization in Pakistan. *Bulletin of Institute of Archaeology* (London), 18:191-207.

—— 1988. Excavations in the Gomal Valley, Rehman Dheri Excavations. Report No. 1. *Ancient Pakistan*, 6:1-232.

Durrani, F.A., I. Ali and G. Erdosy. 1991. Further Excavations at Rehman Dheri. *Ancient Pakistan*, 7:61-146.

Dyson, R.H. 1982. Paradigm Changes in the Study of the Indus Civilization. In G.L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 417-28. New Delhi: Oxford and IBH Publishing Co.

Edens, C. 1993. Indus-Arabian Interaction during the Bronze Age: A Review of Evidence. In G.L. Possehl (ed.), *Harappan Civilization: A Recent Perspective*, pp. 335-63. New Delhi: Oxford and IBH Publishing Co.

Ehrich, R. (ed.) 1992. *Chronologies in Old World Archaeology* (3rd Edition). Chicago: University of Chicago Press.

Fairservis, W.A. 1956. *Excavations in the Quetta Valley, West Pakistan*. Anthropological Papers of American Museum of Natural History, Vol. 45, pt. 2, pp. 169-402.

—— 1959. *Archaeological Surveys in the Zhob and Loralai Districts, West Pakistan*. Anthropological Papers of the American Museum of Natural History, Vol. 47, pt. 2, pp. 277-448.

—— 1975. *The Roots of Ancient India*. Second edn. Chicago: University of Chicago Press.

—— 1976. *Excavation at Allahdino 1: Seals and Inscribed Material*. Papers of the Allahdino Expedition. New York: American Museum of Natural History.

—— 1982. Allahdino: An Excavation of a Small Harappan Site. In G.L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 107-12. New Delhi: Oxford and IBH Publishing Co.

—— 1989. An epigenetic view of the Harappan Culture. In C.C. Lamberg-Karlovski (ed.), *Archaeological Thought in America*, pp. 205-17. Cambridge: Cambridge University Press.

—— 1992. *The Harappan Civilization and its Writing*. New Delhi: Oxford and IBH Publishing Co.

Falkenstein, A. 1964. Sumerische Religiose Texte. *ZA*, 22:44-129.

Francfort, H.P. 1984a. The Harappan Settlement of Shortughai. In B.B. Lal, S.P. Gupta and S. Asthana (eds.), *Frontiers of the Indus Civilization*, pp. 301-10. New Delhi: Books and Books.

Francfort, H.P. 1984b. The Early Periods of Shortughai (Harappan) and the Western Bactrian Culture of Dashly. In Bridget Allchin (ed.), *South Asian Archaeology 1981, pp. 170-75.* Cambridge: Cambridge University Press.

Gadd. C.J. 1932. Seals of Ancient Indian Style

found at Ur. *Proceedings of the British Academy*, 18:1-22.

Gaur, R.C. 1995. *Excavations at Lal Qila*. Jaipur: Publication Scheme.

Griffith, R.T.H. 1973 [Reprint]. *The Hymns of the Ṛigveda*. Delhi: Motilal Banarsidass.

Gupta, S.P. 1974. Two Urbanizations in India: A Side Study in their Social Structure. *Puratattva*, 7: 53-60.

—— 1979. *Archaeology of Soviet Central Asia and the Indian Borderlands*. Vol. II. Delhi: B.R. Publishing Corporation.

—— 1984. Internal Trade of the Harappans. In B.B. Lal, S.P. Gupta and S. Asthana (eds.), *Frontiers of the Indus Civilization*, pp. 417-24. New Delhi: Books and Books.

Gurov, N.V. Ju., V. Knorozov. 1970. *Review of Finish Decipherment of Proto-dravidian Inscription* (English transl. H.C. Pande, Field Research Projects, Coconut Grove, Florida, 1970).

Halim, M.A. 1970-71. Excavations at Sarai Khola, Part I. *Pakistan Archaeology*, 7:23-89.

—— 1972. Excavations at Sarai Khola, Part II. *Pakistan Archaeology*, 8:1-112.

Hargreaves, H. 1929. *Excavations in Baluchistan*. Mem. Arch. Surv. of India, no. 35. New Delhi.

Hemphill. B.E., J.R. Lukacs and K.A.R. Kennedy. 1991. Biological Adaptations and Affinities of Bronze Age Harappans. In R.H. Meadow (ed.), *Harappa Excavation 1986-1990*, pp. 137-82. Madison, Wisconsin: Prehistory Press.

Heras, H. 1953. *Studies in Proto-Indo-Mediterranean Culture*. Bombay.

Hrozny, B. 1941-42. Inschriften und Kultur der Proto-Inder von Mohenjo-daro und Harappa (ca 2500-2000 V. Chr.) I-II, AO, XII, pp. 192-259; XIII, pp. 1-102.

Hunter, G.R. 1934. *The Script of Harappa and Mohenjo-daro and its Connection with Other Scripts*. London: Kegan Paul.

IAR—— Indian Archaeology — A Review.

Jacobson, J. 1986. The Harappan Civilization: An Early State. In J. Jacobson (ed.), *Studies in the Archaeology of India and Pakistan*, pp. 137-73. Delhi: Oxford and IBH Publishing Co.

Jagannathan, P. 1994. *On the Structural Reading and Evolution of the Indus Script*. Ann Arbor: University of Michigan.

Jarrige, J.-F. 1981. Economy and Society in the Early Chalcolithic/Bronze Age of Baluchistan: New Perspectives from Recent Excavations at Mehrgarh. In H. Haertel (ed.), *South Asian Archaeology 1979*, pp. 93-114. Behrin: Dietrich Reimer Verlag.

—— 1982. Excavations at Mehrgarh: Their Significance for Understanding the Background of the Harappan Civilization. In G.L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 79-84. New Delhi: Oxford and IBH Publishing Co.

—— 1984. Towns and Villages of Hill and Plain. In B.B. Lal, S.P. Gupta and S. Asthana (eds.), *Frontiers of the Indus Civilization*, pp. 289-300. New Delhi: Books and Books.

—— 1986. Excavations at Mehrgarh-Nausharo. *Pakistan Archaeology (1974-86)*, 10-22:63-131.

—— 1988. Excavations at Nausharo. *Pakistan Archaeology*, 23:149-203.

—— 1989. Excavations at Nausharo 1987-88. *Pakistan Archaeology*, 24:21-67.

Jarrige, J.-F. and M. Lechevallier. 1979. Excavations at Mehrgarh, Baluchistan: Their Significance in the Prehistorical Context of the Indo-Pakistani Borderlands. In M. Taddei (ed.), *South Asian Archaeology 1977*, pp. 463-535. Naples: Instituto Universitario Orientale.

Jarrige, J.-F. *et al.* (In press). *Excavations at Mehrgarh-Nausharo, 16th to 20th Seasons (1990-94)*. Report Submitted to Director General of Archaeology and Museums, Government of

Pakistan (unpublished, but privately circulated).

Joshi, J.P. 1978. Interlocking of Late Harappa Culture and Painted Grey Ware Culture in the Light of Recent Excavations. *Man and Environment*, 2:98-101.

—— 1990. *Excavation at Surkotada 1971-72 and Exploration in Kutch*. New Delhi: Archaeological Survey of India.

—— 1993. *Excavation at Bhagwanpura 1975-76*. New Delhi: Archaeological Survey of India.

Joshi, J.P. and Madhu Bala. 1982. Manda: A Harappan Site in Jammu and Kashmir. In G.L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 185-95. New Delhi: Oxford and IBH Publishing Co.

Joshi, J.P., Madhu Bala and Jassu Ram. 1984. The Indus Civilization: A Reconsideration on the Basis of Distribution Maps. In B.B. Lal, S.P. Gupta, and Shashi Asthana (eds.), *Frontiers of the Indus Civilization*, pp. 511-30. New Delhi: Books and Books.

Joshi, J.P. and A. Parpola. 1987. *Corpus of Indus Seals and Inscriptions: Collections in India*. Mem. Arch. Surv. of India, no. 86. New Delhi.

Kajale, M.D. 1991. Current Status of Indian Palaeoethnobotany. In Jane Renfrew (ed.), *New Light on Early Farming: Recent Developments in Palaeoethnobotany*. Edinburgh University Press.

Karuo: A Neolithic Site in Tibet. Tibet Autonomous Region and Deptt. of History of Sichuan University, Beijing, 1985.

Kaw, R.N. 1979. The Neolithic Culture of Kashmir. In D.P. Agrawal, and D.K. Chakrabarti (eds.), *Essays in Indian Protohistory*, pp. 219-28. Delhi: B.R. Publishing Corporation.

Kennedy, K.A.R. and S.U. Deraniyagala. 1989. Fossil remains of 28,000-year-old Hominids from Sri Lanka. *Current Anthropology*, 30 (3):394-99.

Kennedy, K.A.R and G.L. Possehl (eds.). 1976. *Ecological Background of South Asian Prehistory*. Cornell: University Press.

Kenoyer, J.M. 1989. Socio-economic Structures of the Indus Civilization as Reflected in Specialized Crafts and the Question of Ritual Segregation. In. J.M. Keynoyer (ed.), *Old Problems and New Perspectives in the Archaeology of South Asia*, pp. 183-92. Wisconsin Archaeological Reports, Vol. 2.

—— 1991. Urban Process in the Indus Tradition: A Preliminary Model from Harappa. In R.H. Meadow (ed.), *Harappa Excavations 1986-90*, pp. 29-60. Madison, Wisconsin: Prehistory Press.

Khan, F.A. 1965. Excavations at Kot Diji. *Pakistan Archaeology*, 2:11-85.

Khan, F., J.R. Knox, K.D. Thomas. 1986. Sheri Khan Tarakai: A New site in the North West Frontier Province of Pakistan. *Journal of Central Asia*. 9:13-34.

Khatri, J.S. and M. Acharya. 1995. Kunal: A New Indus-Saraswati Site. *Puratattva*, 25:84-86.

Khazanchi, T.N. 1976. Pit Dwellers of Burzahom. *The Illustrated Weekly of India*, no. 36 (Sept. 5), pp. 25-27, Bombay.

Kinnier-Wilson, J.V. 1974. *Indo-Sumerian*. Oxford: Oxford University Press.

Koskenniemi, K. and A. Parpola. 1979. *Corpus of Texts in the Indus Script*. Helsinki: Department of Asian and African Studies, University of Helsinki, Research Reports no. 1.

—— 1982. *A Concordance of Texts in the Indus Script*. Helsinki: Department of Asian and African Studies, University of Helsinki.

Koskenniemi, S., A. Parpola and S. Parpola. 1973. *Materials for the Study of Indus Script*. Helsinki: Department of Asian and African Studies, University of Helsinki.

Lal B.B. 1954-1955. Excavations at Hastinapura and other Explorations in the Upper Ganga

and Sutlej Basins 1950-52. *Ancient India*, 10 & 11:5-151.

—— 1960. From the Megalithic to the Harappan: Tracing Back the Graffiti on the Pottery. *Ancient India*, 16:4-24.

—— 1966. The Direction of Writing in the Harappan Script. *Antiquity*, XL, (157): 52-55.

—— 1968. A Deluge? Which Deluge? Yet another Facet of the Problem of the Copper Hoard Culture. *American Anthropologist*, 70:857-63.

——1970. Some Observations on the Harappan Script. In L. Chandra *et al.* (eds.), *India's Contribution to World Thought and Culture*, pp. 189-202, Madras.

—— 1972. The Copper Hoard Culture of the Ganga Valley. *Antiquity*, 46(184):282-87.

—— 1970-71. Perhaps the Earliest Ploughed Field so far Excavated Anywhere in the World. *Puratattva*, 4:1-3.

—— 1974. Has the Indus Script been Deciphered? An Assessment of Two Latest Claims. Shimla: Indian Institute of Advanced Study.

—— 1975. The Indus Script: Some Observations Based on Archaeology. *Journal of the Royal Asiatic Society* (London), 2:173-77.

—— 1979a. Kalibangan and the Indus Civilization. In D.P. Agrawal and D.K. Chakrabarti (eds.), *Essays in Indian Protohistory*, pp. 65-97. New Delhi: B.R. Publishing Corporation.

—— 1979b. On the Most Frequently Used Symbol in the Indus Script. *East and West* (N.S.) , 29:27-35.

—— 1983. Reading the Indus Script. *Indian and Foreign Review*, 20(13):33-36.

—— 1984. The Earliest Datable Earthquake in India. *Science Age* (October 1984), pp. 8-9. Bombay: Nehru Centre.

—— 1992. Antecedents of the signs used in the Indus Script: A discussion. In G.L. Possehl (ed.). *South Asian Archaeology Studies*, pp. 45-55. New Delhi: Oxford and IBH Publishing Co.

—— 1993. A Glimpse of the Social Stratification and Political Set-up of the Indus Civilization. In G.L. Possehl and M. Tosi (eds.), *Harappan Studies*, I:63-71.

—— 1994. The Chronological Horizon of the Mature Indus Civilization. In J.M. Kenoyer (ed.), *From Sumer to Meluhha*, pp. 15-25. Wisconsin Archaeological Report, Vol. 3.

Lal, Makkhan. 1983. Copper Hoard Culture of India—a Reassesment. *Puratattva*, 12:65-77.

Lambrick, H.T. 1967. The Indus Flood-Plain and the 'Indus' Civilization. *The Geographical Journal*, 133:483-95.

Langdon, S. 1931. The Indus Script. In John Marshall *Mohenjo-daro and the Indus Civilization*, pp. 423-55. London: Arthur Probsthain.

Leemans, W.F. 1960. The Trade Relations of Babylonia. *Journal of the Social and Economic History of the Orient*, 3:21-37.

—— 1968. Additional Evidence for the Persian Gulf Trade and Meluhha. *Journal of Social and Economic History of the Orient*, 11:215-26.

Leshnik, L.S. 1968. The Harappan 'Port' at Lothal: Another view. *American Anthropologist*, 70(5):911-22.

Mackay, E. J. H. 1938. *Further Excavations at Mohenjo-daro*. 2 vols. Delhi: Government of India.

—— 1943. *Chanhu-daro Excavations 1935-36*. New Haven, Connecticut: American Oriental Society.

Mahadevan, I. 1977. *The Indus Script: Texts, Concordance and Tables*. Mem. Arch. Surv. of India, no. 77, Delhi.

Mainkar, V.B. 1984. Metrology in the Indus Civilization. In B.B. Lal, S.P. Gupta and Shashi Asthana (eds.), *Frontiers of the Indus Civilization*. pp. 141-51. New Delhi: Books and Books.

Majumdar, N.G. 1934. *Explorations in Sind.* Mem. Arch. Surv. of India, no. 48. Government of India.

Marshall, J. 1931. *Mohenjo-daro and the Indus Civilization.* 3 vols. London: Arthur Probsthain.

Masson, V.M. 1988. *Altyn-Depe* (Translated by H.N. Michael). Philadelphia: University Museum.

Meadow, R.H. (ed.). 1991. *Harappa Excavations 1986-90.* Madison, Wisconsin: Prehistory Press.

Meadow, R.H., J.M. Kenoyer and R.P. Wright. (In press). *Harappa Excavations 1994.* Report submitted to the Director General of Archaeology and Museums, Government of Pakistan.

Meriggi, P. 1934. Zur Indus-Schrift. *ZDMG,* XII:198-241.

Misra, V.N. 1973. Bagor: A Late Mesolithic Settlement in Northwest India. *World Archaeology,* 5(1):92-110.

—— 1993. Indus Civilization and the Rigvedic Sarasvati. Paper presented at the Twelfth International Conference of the European Association of South Asian Archaeologists. Porthania, University of Helsinki, Finland, 5-9 July.

Mughal, M.R. 1972. Excavation at Jalilpur. *Pakistan Archaeology,* 8:117-24.

—— 1974. New Evidence of the Early Harappan Culture from Jalilpur, Pakistan. *Archaeology,* 27(2):106-13.

—— 1990a. The Protohistoric Settlement Patterns in the Cholistan Desert. In M. Taddei (ed.), *South Asian Archaeology 1987,* part I, pp. 143-56. Rome: IsMEO.

—— 1990b. Further Evidence of the Early Harappan Culture in the Greater Indus Valley: 1971-90. *South Asian Studies,* 6:175-99.

—— 1992. Jhukar and Late Harappan Cultural Mosaic of the Greater Indus Valley. In C. Jarrige (ed.), *South Asian Archaeology 1989,* pp. 213-21. Madison, Wisconsin: Prehistory Press.

Muller, F.M. 1979 [Reprint]. *Physical Religion.* New Delhi: Asian Educational Services.

Nagaraja Rao, M.S. and K.C. Malhotra. 1965. *The Stone Age Hill Dwellers of Tekkalkota.* Poona (Pune): Deccan College Postgraduate and Research Institute.

Narasimhaiah, B. 1980. *Neolithic and Megalithic Cultures in Tamil Nadu.* Delhi: Sundeep Prakashan.

PA——Pakistan Archaeology

Pande, B.M. 1971. Harappan Ring-kernoi: A Study. *East and West* (N.S.), 21(3-4):311-24.

Parpola, A. 1992. The 'Fig Deity Seal' from Mohenjo-daro: Its Iconography and Inscription. In C. Jarrige (ed.), *South Asian Archaeology 1989,* pp. 227-36. Madison, Wisconsin: Prehistory Press.

—— 1994. *Deciphering the Indus Script.* Cambridge: Cambridge University Press.

Parpola, A., S. Koskenniemi, S. Parpola and P. Aalto 1969a. *Decipherment of the Proto-Dravidian Inscriptions of the Indus Civilization.* Copenhagen.

—— 1969b. *Progress in the Decipherment of the Proto-Dravidian Indus Script,* Copenhagen.

—— 1970. *Further Progress in the Indus Script Decipherment.* Copenhagen.

Piggott, S. 1950. *Prehistoric India.* Harmondsworth: Penguin.

Possehl, G.L. 1967. The Mohenjo-daro Floods: A Reply. *American Anthropologist,* 69:32-40.

—— 1980. *The Indus Civilization in Saurashtra.* Delhi: B.R. Publishing Corporation.

—— 1986. *Kulli: An Exploration of Ancient Civilization in Asia.* Durham: Carolina Academic Press.

—— (ed.) 1990. *Radiocarbon Dates for South Asian Archaeology.* The University Museum, University of Pennsylvania, Philadelphia.

Possehl, G.L. and C.F. Herman. 1990. The Sorath Harappan: A New Regional Manifes-

tation of the Indus Urban Phase. In M. Taddei (ed.), *South Asian Archaeology 1987*, pp. 295-319.

Possehl, G.L. and M.H. Rawal. 1989. *Harappan Civilization and Rojdi*. New Delhi: Oxford and IBH Publishing Co.

Potts, D.T. 1993. Tell Abraq and the Harappan Tradition in Southeastern Arabia. In G.L. Possehl (ed.), *Harappan Civilization: A Recent Perspective*, pp. 323-33. New Delhi: Oxford and IBH Publishing Co.

Prannath. 1931-32. The Scripts on the Indus Valley Seals, I-II, *Indian Historical Quarterly*, VII, Suppl., pp. 1-52; VIII, pp. 1-32.

Raikes, R.L. 1964. The End of the Ancient Cities of the Indus. *American Anthropologist*, 66:284-99.

—— 1965. The Mohenjo-daro Floods. *Antiquity*, 39:196-203.

Rao, M.V.N. Krishna, 1982. *Indus Script Deciphered*. Delhi: Agam Kala Prakashan.

Rao, S.R. 1962-63. Excavation at Rangpur and Other Explorations in Gujarat. *Ancient India*, 18-19:5-207.

—— 1973. *Lothal and the Indus Civilization*. Bombay: Asia Publishing House.

—— 1979. *Lothal - A Harappan Port Town (1955-62)*, Vol. I. New Delhi: Archaeological Survey of India.

—— 1982. *The Decipherment of the Indus Script*. Bombay: Asia Publishing House.

—— 1985. *Lothal — A Harappan Port Town (1955-62)*. Vol. II. New Delhi: Archaeological Survey of India.

—— 1990. Excavation of the Legendary City of Dvaraka in the Arabian Sea. *Journal of Marine Archaeology*, 1:59-98.

Ratnagar, S. 1981. *Encounters: The Westerly Trade of the Harappan Civilization*. Delhi: Oxford University Press.

—— 1991. *Enquiries into the Political Organization of the Harappan Society*. Pune: Ravish Publishers.

—— 1994. Harappan Trade in its "World" Context. *Man and Environment*, XIX (1-2):115-27.

Ray, S.K. 1966. *Indus Script: Methods of Study*. Anand K. Coomaraswamy Memorial Lecture, New Delhi.

Richter-Ushanas, E. 1992b. *The Fifth Veda: The Indus Seals in Comparison with the Ṛigveda*. Germany.

—— 1992a. *The Symbolic Conception of the Indus Script*. Germany.

Ross, A.S.C. 1938. *The "Numeral-Signs" of the Mohenjo-daro Script*. Mem. Arch. Surv. of India, no. 5, New Delhi.

Saar, S.S. 1992. *Ancestors of Kashmir*. New Delhi: Lalit Art Publishers.

Sali, S.A. 1986. *Daimabad 1976-79*. New Delhi: Archaeological Survey of India.

Sankalia, H.D., S.B. Deo and Z.D. Ansari. 1969. *Excavation at Ahar (Tambavati)*. Poona: Deccan College Postgraduate and Research Institute.

Sarianidi, V.I. 1979. New Finds in Bactria and Indo-Iranian Connections. In M. Taddei (ed.) *South Asian Archaeology 1977*, Vol. 2, pp. 643-59. Naples: Instituto Universitario Orientale.

Sarkar, H. 1975. Late Stone Age. In R. Subrahmanyam *et al.* (eds.), *Nagarjunakonda 1954-60*, pp. 46-71. Mem. Arch. Surv. of India, no. 75.

Shaffer, J.G. 1974. *Allahdino and the Mature Harappan: A Preliminary Report on the Cultural Straigraphy*. Cleveland: Department of Anthropology, Case Western Reserve University.

—— 1978. The Later Prehistoric Periods. In F.R. Allchin and N. Hammond (eds.), *The Archaeology of Afghanistan: From Earliest Times to Timurid Period*, pp. 71-187. London.

—— 1979. The Indus Civilization: New Evi-

dence from Pakistan. In D.P. Agrawal and D.K. Chakrabarti (eds.), *Essays in Indian Protohistory*, pp. 17-29. Delhi: B.R. Publishing Corporation.

—— 1992. The Indus Valley, Baluchistan and Helmand Traditions: Neolithic Through Bronze Age. In R. Ehrich (ed.), *Chronologies in Old World Archaeology* (3rd Edition), Vol. 1, pp. 441-46. Chicago: University of Chicago Press.

Shankarananda. 1955. *The Indus People Speak*. Calcutta.

Sharma, A.K. 1970. Kalibangan Human Skeletal Remains — An Osteo-Archaeological Approach. *Journal of the Oriental Institute*, XIX:109-13.

—— 1981. Prehistoric Explorations in Sikkim. *Puratattva*, 10:82-83.

—— 1982. Excavations at Gufkral - 1981. *Puratattva*, 11:19-25.

—— 1993. The Harappan Horse was buried under Dune of .... *Puratattva*, 23:30-34.

Sharma, G.R., V.D. Misra, D. Mandal, B.B. Misra and J.N. Pal. 1980. *Beginnings of Agriculture*. Allahabad: Abinash Prakashan.

Sharma, T.C. 1981. The Neolithic Pattern of North-Eastern India. In M.S. Nagaraja Rao (ed.), *Madhu: Recent Researches in Indian Archaeology and Art History*, pp. 41-52. Delhi: Agam Kala Prakashan.

Sharma, Y.D. 1982. Harappan Complex on the Sutlej (India). In G.L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 141-65. New Delhi: Oxford and IBH Publishing Co.

Shchetenko, A.Y. 1968. Excavations at Altyn-Depe, South Turkmenia. *Kratikiye Soobshckeniya Instituta Arkheologii,* 114, pp. 39-45.

Shinde, V. 1992a. Excavations at Padri — 1990-91: A Preliminary Report. *Man & Environment,* XVII (1):79-86.

—— 1992b. Padri and the Indus Civilization. *South Asian Studies*, 8:55-66.

Singh, U.V. and S. Bhan. 1982. A note on the Excavations at Balu, District Jind (Haryana). In R.K. Sharma (ed.), *Indian Archaeology: New Perspectives*, pp. 124-26. Delhi: Agam Kala Prakashan.

Sitrampalam, S.K. 1987. Survey of pre- and protohistory of Sri Lanka. *Bulletin of the Deccan College Postgraduate and Research Institute* (Pune). 46:137-49.

Sonawane, V.H. and P. Ajithprasad. 1994. Harappa Culture and Gujarat. *Man & Environment*, XIX (1-2):129-39.

Spate, O.H.K. and A.T.A. Learmonth. 1984 (Reprint). *India and Pakistan: A General and Regional Geography*. Delhi: Munshiram Manoharlal Publishers Pvt. Ltd.

Srivastava, K.M. 1991. *Madinat Hamad: Burial Mounds 1984-85*. Bahrain National Museum.

Stacul, G. 1969. Excavation near Ghaligai (1968) and Chronological Sequence of Protohistorical Cultures in the Swat Valley (W. Pakistan). *East and West*, (N.S.) 19, nos. 1 and 2, pp. 44-91.

Stein, A. 1929. *An Archaeological Tour in Waziristan and Northern Baluchistan*. Mem. Arch. Surv. of India, no. 37. Calcutta.

—— 1931. *An Archaeological Tour in Gedrosia*. Mem. Arch. Surv. of India, no. 43. Calcutta.

Stuiver, M. and P.J. Reimer, 1986. A Computer Program for Radiocarbon Age Calibration. *Radiocarbon*, 28:1022-1030.

Subbarayappa, B. (In press). *Numerical System of the Indus Valley Civilization.*

Subbarao, B. 1948. *Stone Age Cultures of Bellary (Being a Report on the Excavation at Sanganakallu)*. Poona (Pune): Deccan College Postgraduate and Research Institute.

Thapar, B.K. 1957. Maski 1954: A Chalcolithic Site of the Southern Deccan. *Ancient India*, 13:4-142.

—— 1975. Kalibangan: A Harappan Metropolis beyond the Indus Valley. *Expedition*, 17(2):19-32.

—— 1985. *Recent Archaeological Discoveries in India*. Paris: Unesco.

Tosi, M. 1979. The Proto-urban Cultures of Eastern Iran and the Indus Civilization. Notes and Suggestions for a Spatio-temporal Frame to Study the Early Relations between India and Iran. In M. Taddei (ed.), *South Asian Archaeology 1977*, pp. 149-71. Naples: Instituto Universitario Orientale.

—— 1986. The Early Maritime Cultures of the Arabian Gulf and the Indian Ocean. In S.H. Ali Al Khalifa and M. Rice (eds.), *Bahrain Through the Ages*, pp. 94-107, London.

—— 1993. The Harappan Civilization beyond the Indian Subcontinent. In G.L. Possehl (ed.), *Harappan Civilization: A Recent Perspective*, pp. 365-78. New Delhi: Oxford and IBH Publishing Co.

Vats, M.S. 1940. *Excavations at Harappa*. Delhi: Government of India. 2 vols.

Verma, R.K. (In press). *Couple and Multi-Couple Burials of the Mesolithic Period in the Ganga Valley*.

Vishnu-Mittre. 1989. Forty Years of Archaeobotanical Research in South Asia. *Man And Environment*, XIV (I):1-16.

Vishnu-Mittre and R. Savithri. 1982. Food Economy of the Harappans. In G.L. Possehl (ed.), *Harappan Civilization: A Contemporary Perspective*, pp. 205-21. New Delhi: Oxford and IBH Publishing Co.

Waddel, L.A. 1925. *Indo-Sumerian Seals Deciphered*. London.

Wakankar, V.S. 1967. *Kayatha Excavation Number. The Vikram Journal of Vikram University*. Ujjain.

Weber, Steven A. 1990. Millets in South Asia: Rojdi as a Case Study. In M. Taddei (ed.), *South Asian Archaeology 1987*, pp. 333-48. Rome: IsMEO.

Wheeler, R.E.M. 1947. Harappa 1946: The Defences and Cemetery R37. *Ancient India*, 3:58-130.

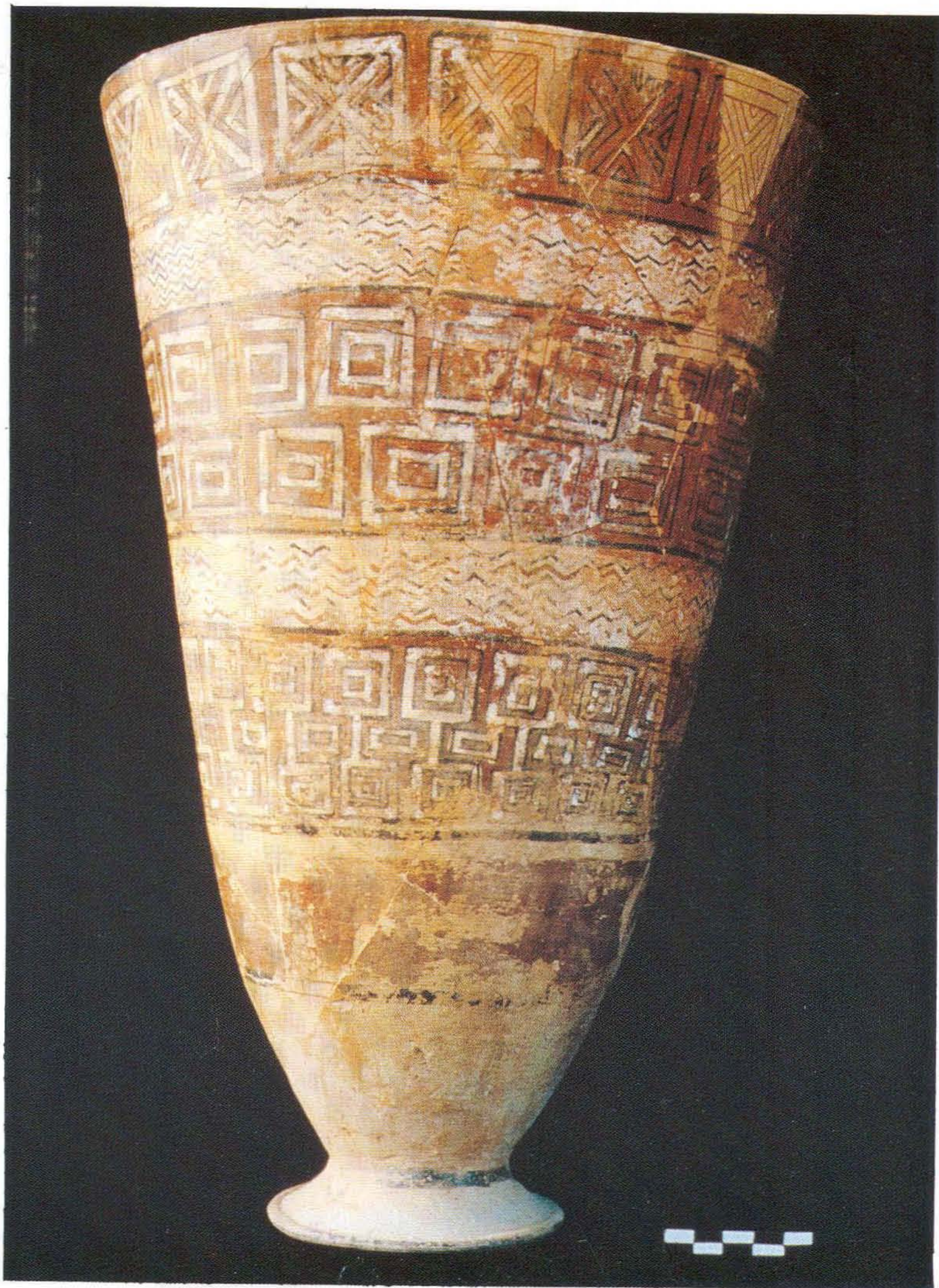
—— 1948. Brahmagiri and Chandravalli 1947: Megalithic and other Cultures in the Chitaldrug District, Mysore State. *Ancient India*, 4:180-310.

—— 1968. *The Indus Civilization*. 3rd edn. Cambridge: University Press.

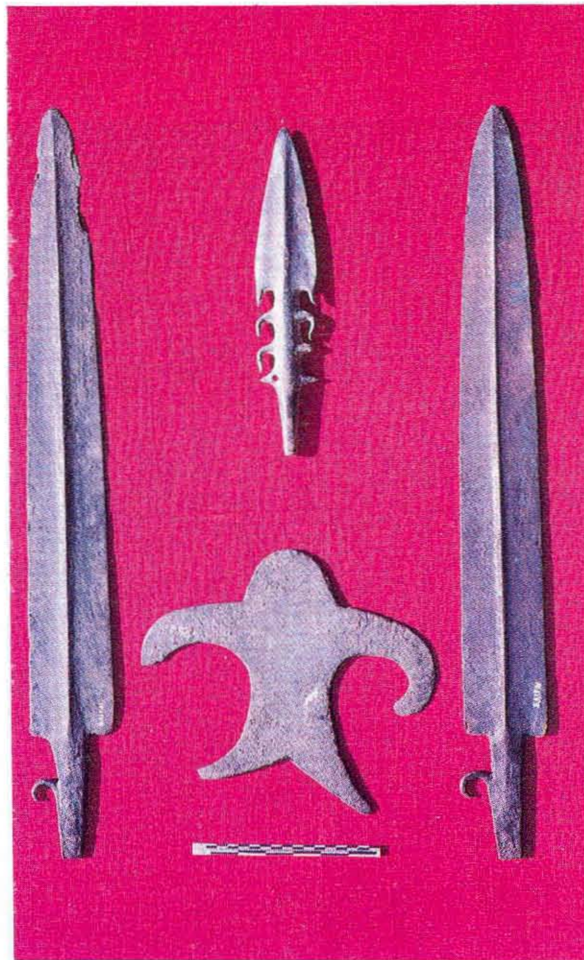
Zeuner, F.E. and B. Allchin. 1956. The Microlithic Sites of Tinnevelly District, Madras State. *Ancient India*, 12:4-20.

Zide, Arlene R.K. and K.V. Zvelebil (eds.). 1976. *The Soviet Decipherment of the Indus Valley Script: Translation and Critique*. The Hague: Mouton.

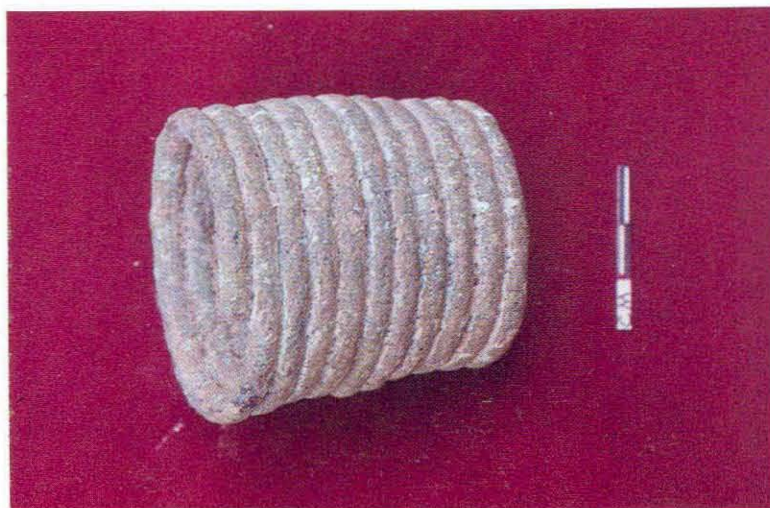
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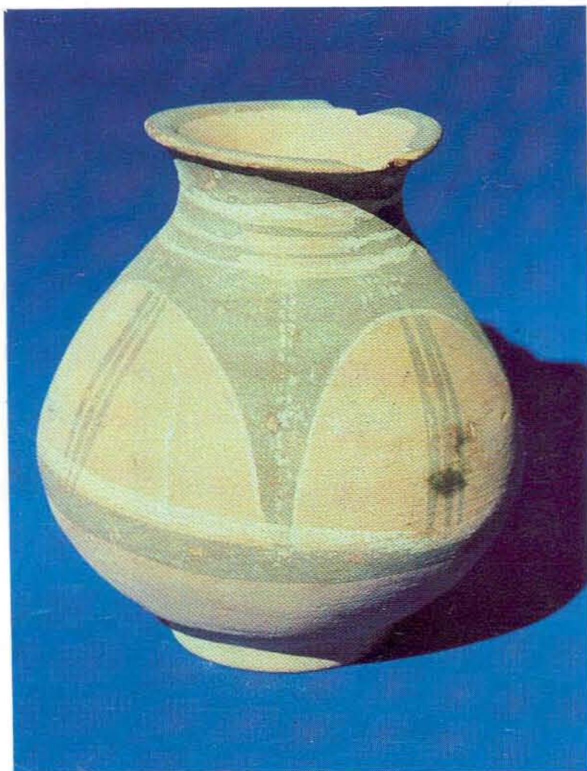
Pl. I. Mehrgarh: Polychrome goblet, Period IV



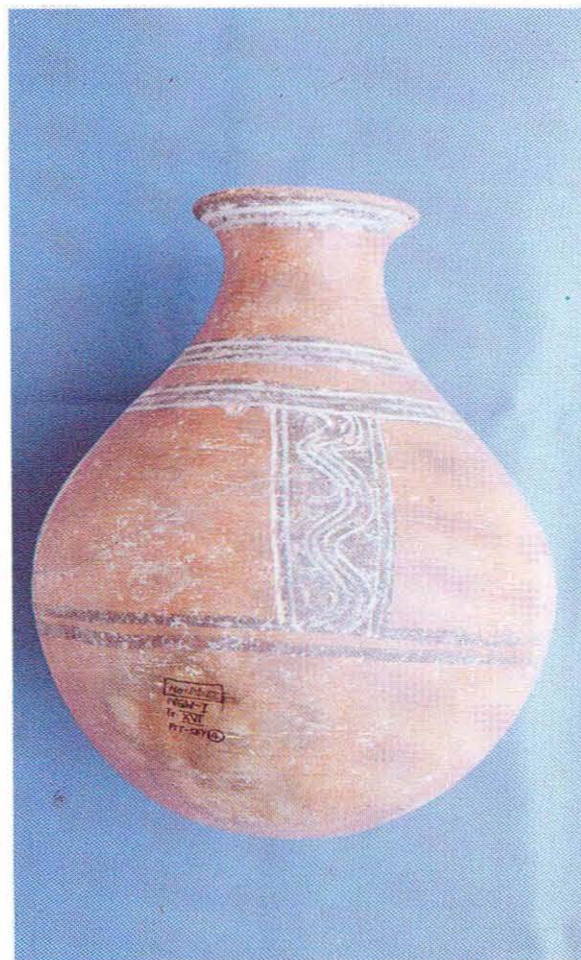
Pl. IIA. Saipai: 'Copper Hoard'



Pl. IIB. Kunal: Spiralled bangles, silver



Pl. IIIA. Kalibangan: Painted pot, Period I



Pl. IIIB. Nagwada: Painted pot, pre-Harappan



Pl. IVA. Rehman Dheri: Painted bowl, Period I

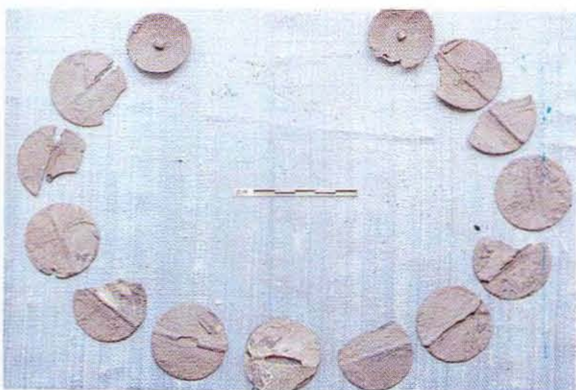


Pl. IVB. Kunal: Painted pottery



Pl. VA. Kunal: Silver ornaments



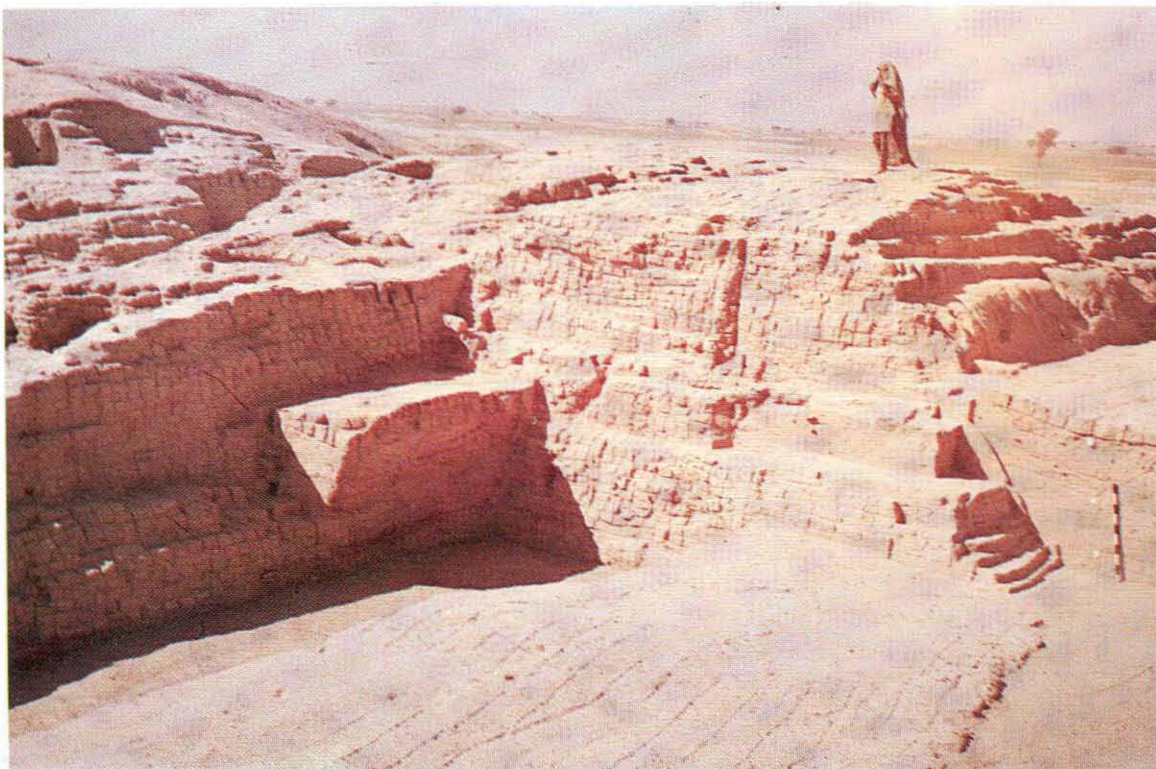


Pl. VB. Kunal: Discular beads of silver with axial perforation

Pl. VC. Lothal: Discular beads of gold with circular perforation



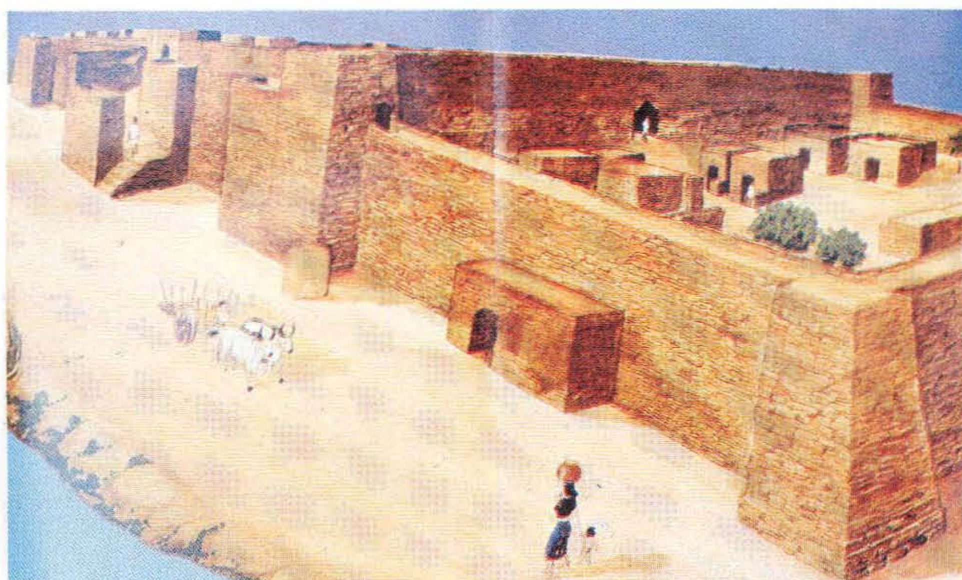
Pl. VIA. Dholavira: Stone pillars



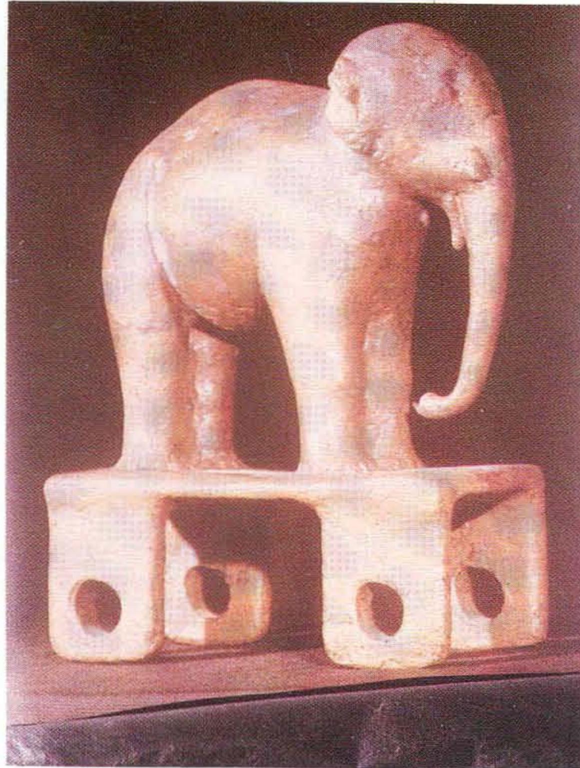
Pl. VIB. Kalibangan: Partition wall of the Citadel, with its tower and brick-on-edge pathway



Pl. VIIA. Mohenjo-daro: Excavated remains, Stūpa Mound



Pl. VIIB. Surkotada: An artist's conjectural reconstruction of the site



Pl. VIIIA. Daimabad: Copper elephant



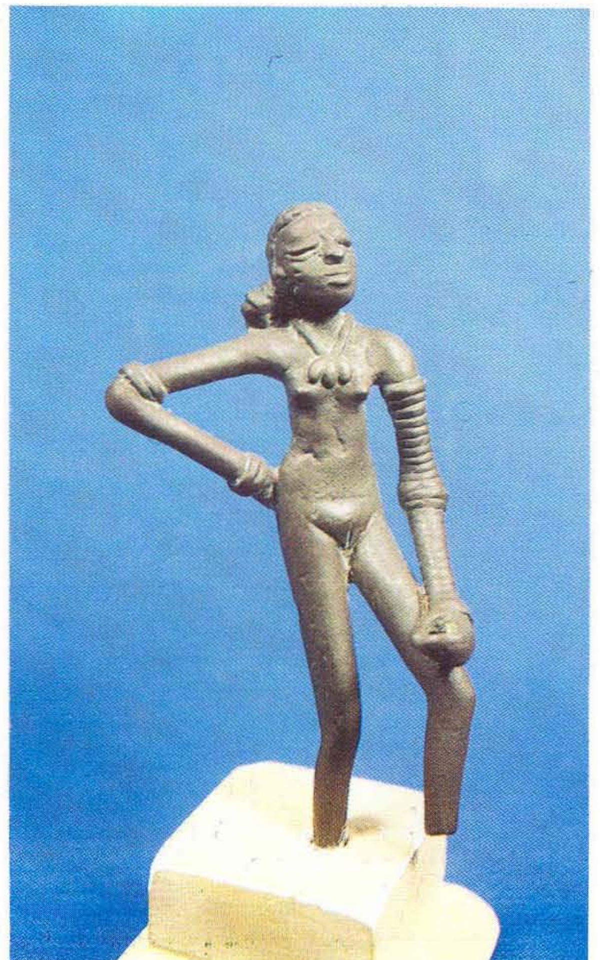
Pl. VIIIB. Daimabad: Copper chariot



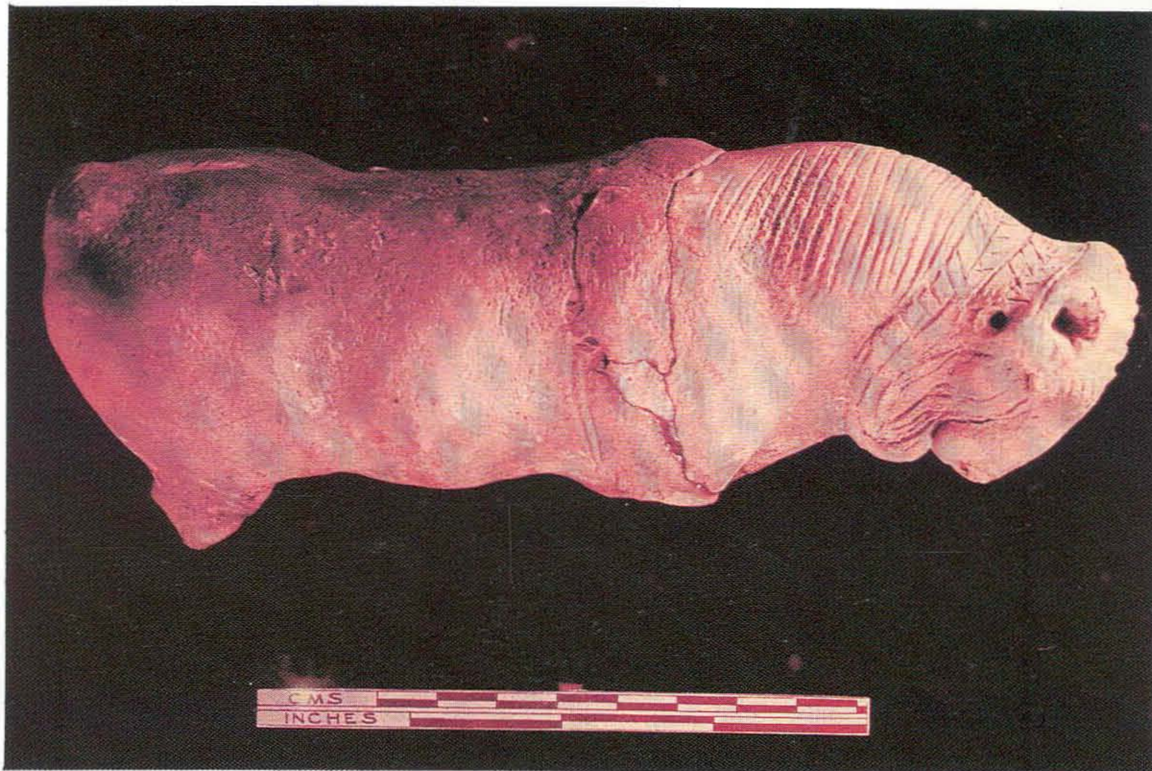
Pl. IX. Mohenjo-daro: 'Priest', stone



Pl. XA. Harappa: Male figure, stone



Pl. XB. Mohenjo-daro: 'Dancing girl', bronze



Pl. XIA. Kalibangan: Terracotta bull



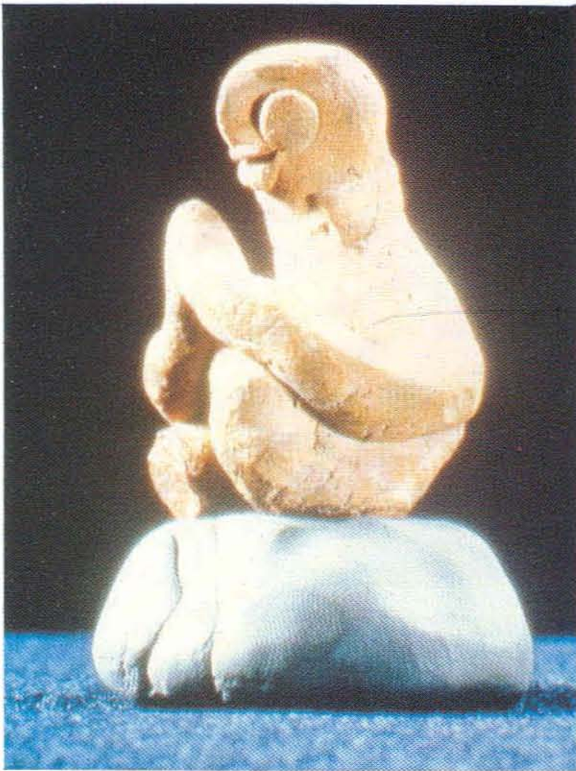
Pl. XIB. Kalibangan: Bronze bull



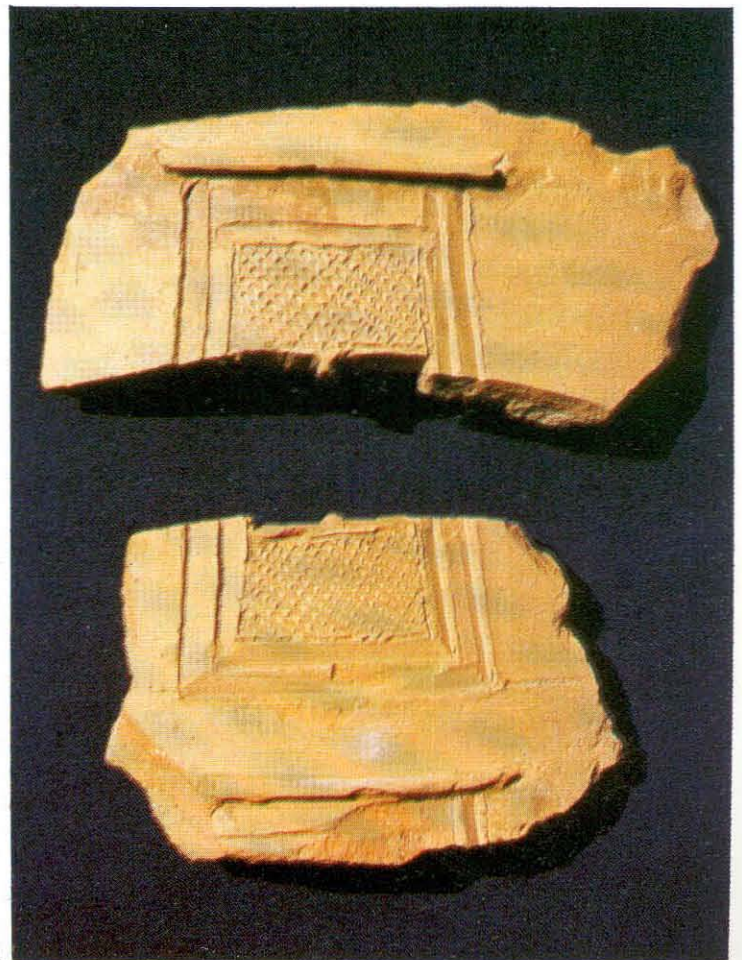
Pl. XIIA. Kalibangan: Terracotta *kernos*



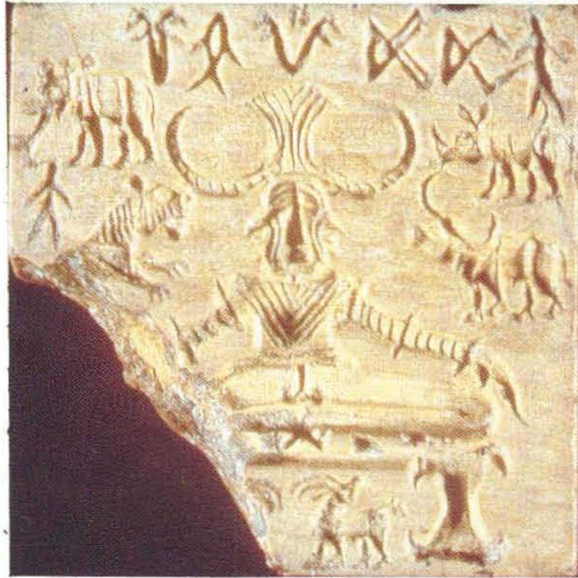
Pl. XIIB. Kalibangan: Terracotta feeding cup



Pl. XIIIA. Harappa: Terracotta figurine



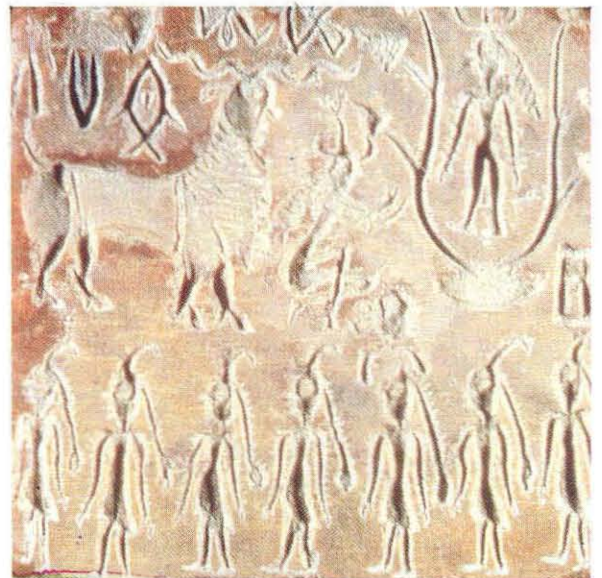
Pl. XIIIB. Harappa: Depiction of a window, terracotta



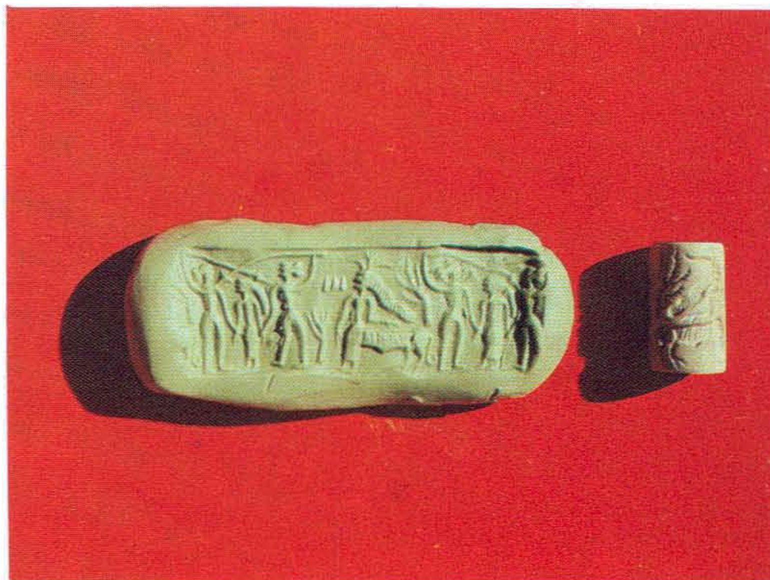
Pl. XIVA. Mohenjo-daro: Seal-impression, depicting a seated figure surrounded by animals, believed to be Śiva in the form of *Paśupati*



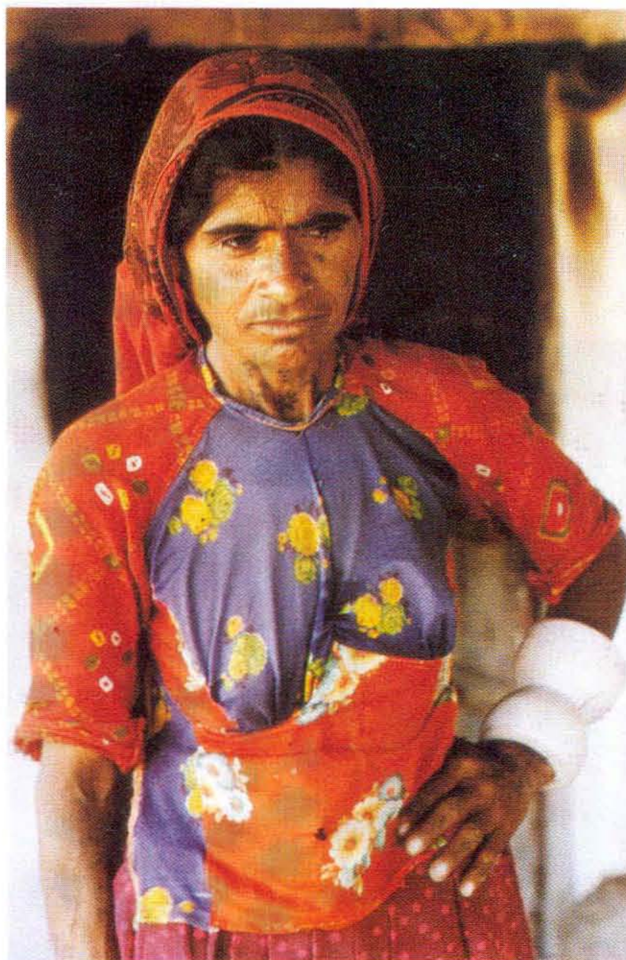
Pl. XIVB. Mohenjo-daro: Seal-impression, depicting a mythical (?) animal with three heads



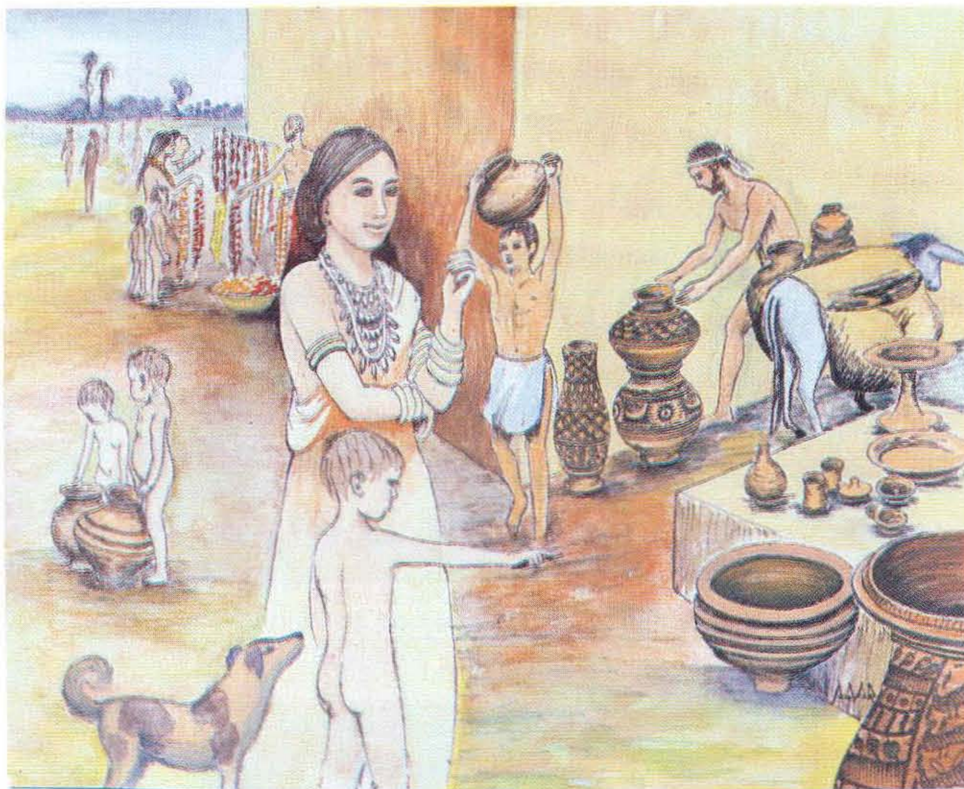
Pl. XIVC. Mohenjo-daro: Seal-impression, depicting in the upper register a deity in a pipal enclosure, a kneeling devotee and an animal perhaps brought in for sacrifice, and seven figures in the lower register



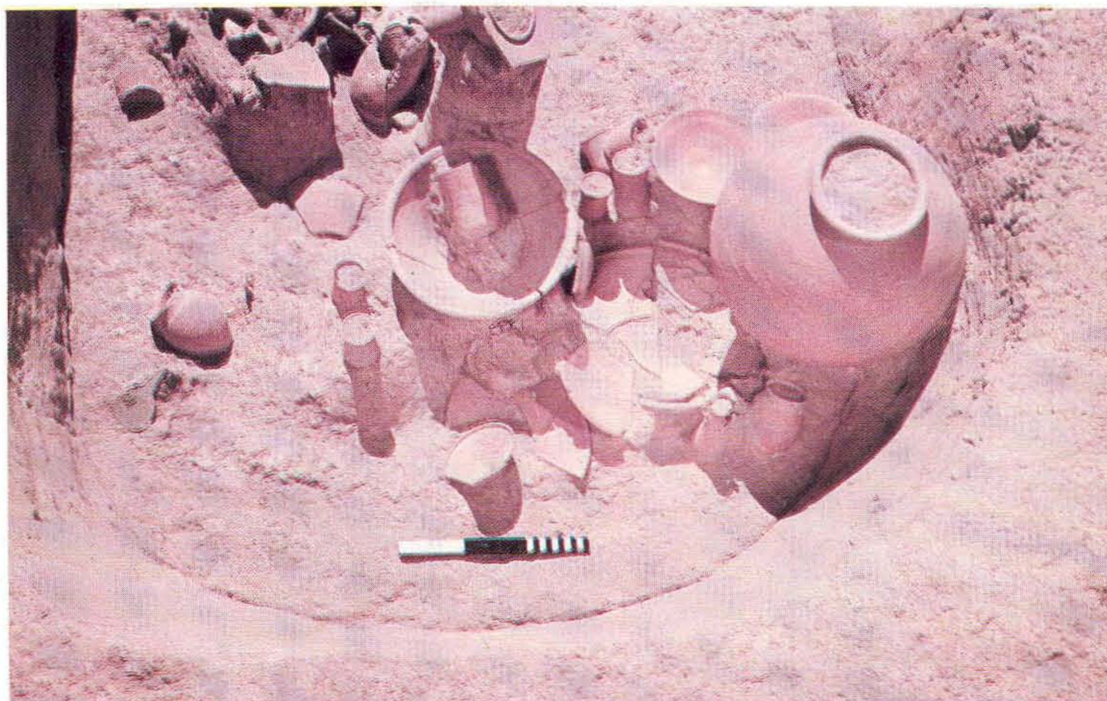
Pl. XVA. Kalibangan: Cylinder seal and its impression



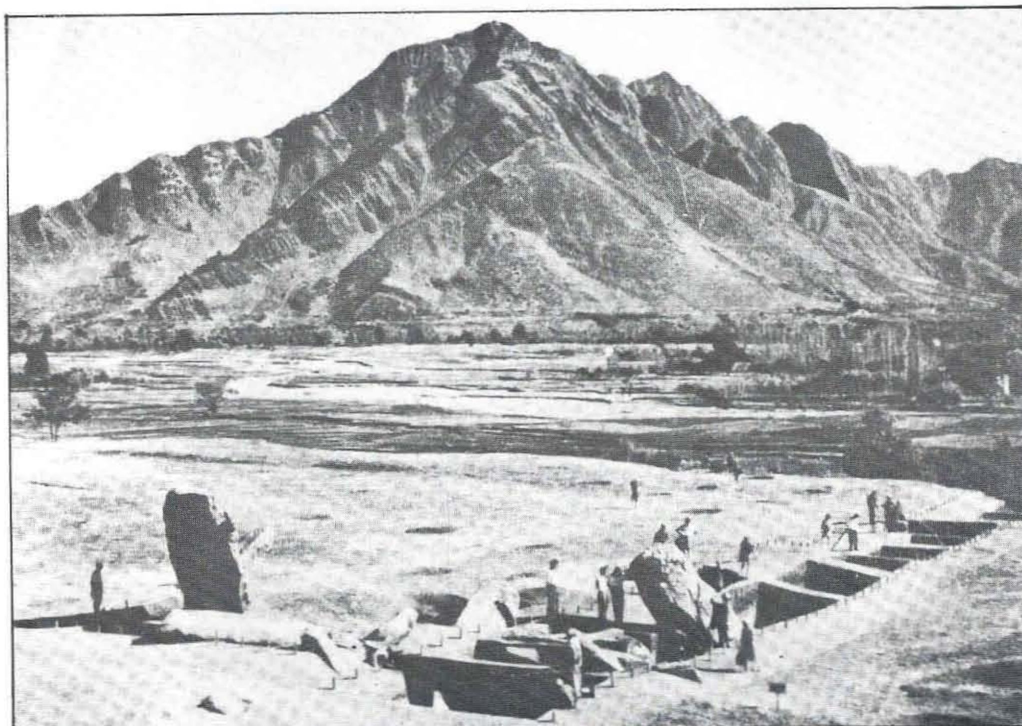
Pl. XVB. A Rabari woman of Kutch wearing a *ḍamurū*-shaped ornament on her left wrist. A figure engraved on a stone stele found in the Mature Harappan levels at Banawali also wears a similar ornament, XLVIIIA



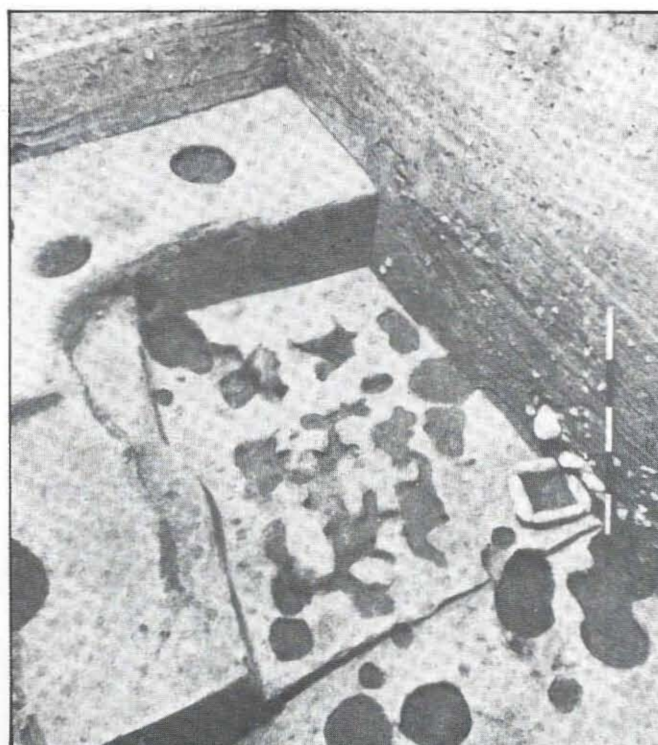
Pl. XVIA. An artist's reconstruction of a Harappan potter's shop



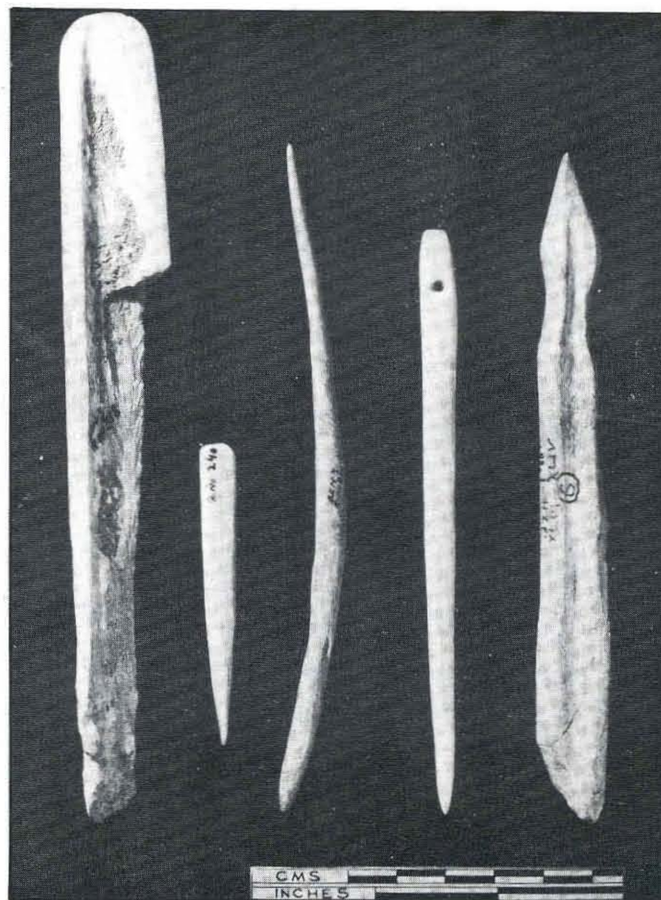
Pl. XVIB. Kalibangan: Burial, Type III



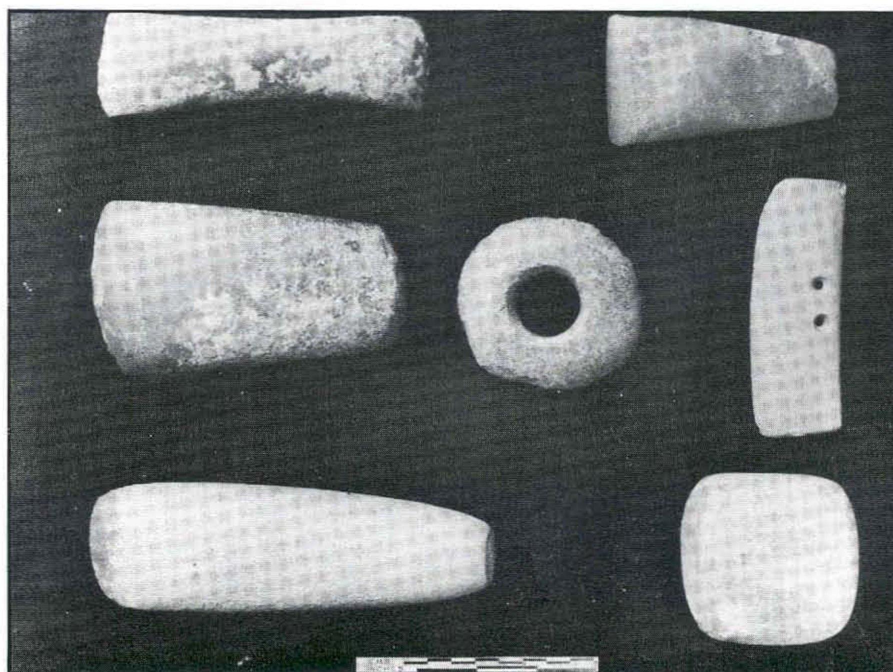
Pl. XVIIA. Burzahom: General view of the site, with the Himalayas in the background



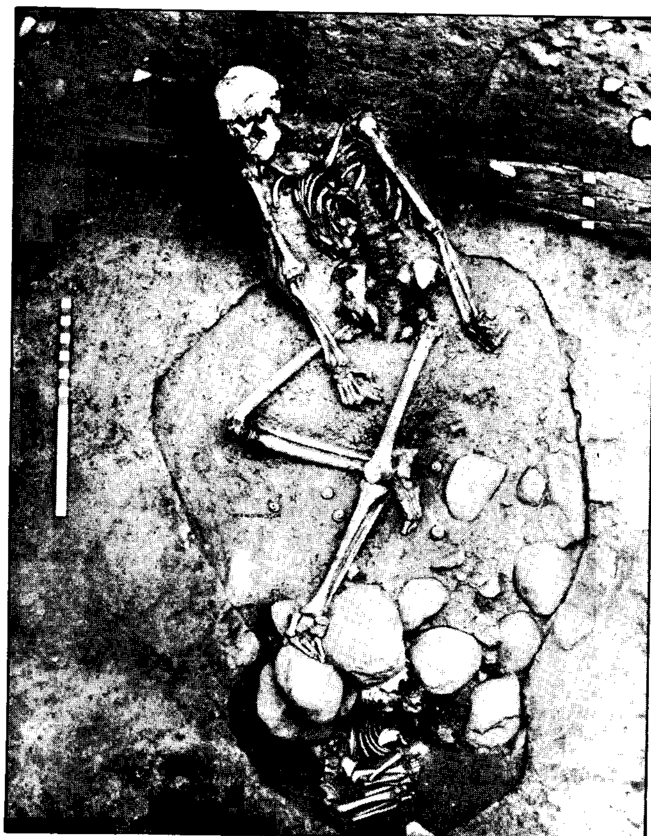
Pl. XVIIB. Burzahom: View of a squarish chamber with hearth, etc., Neolithic



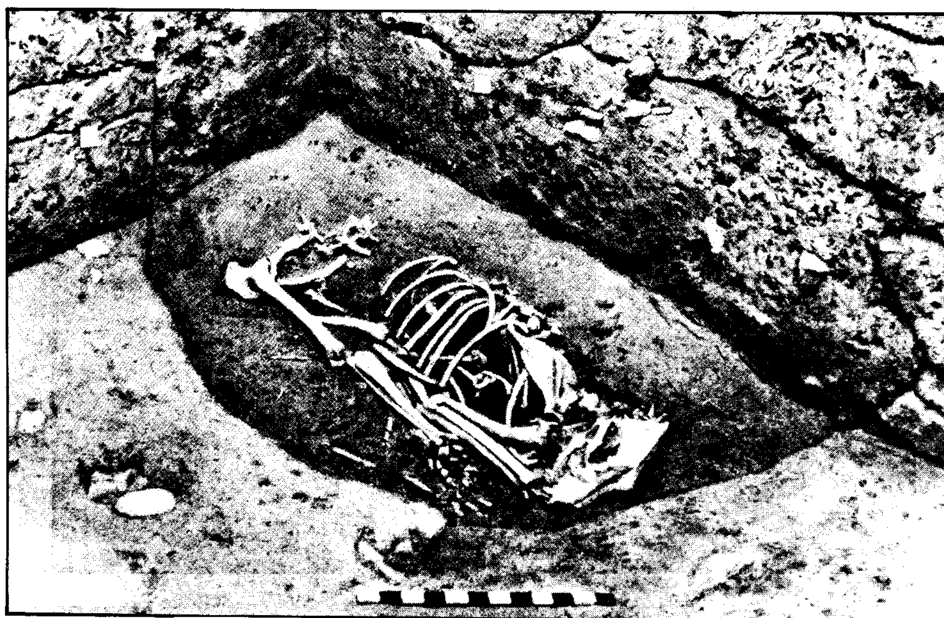
Pl. XVIIIA. Burzahom: Bone tools, Neolithic



Pl. XVIIIB. Burzahom: Stone tools, Neolithic



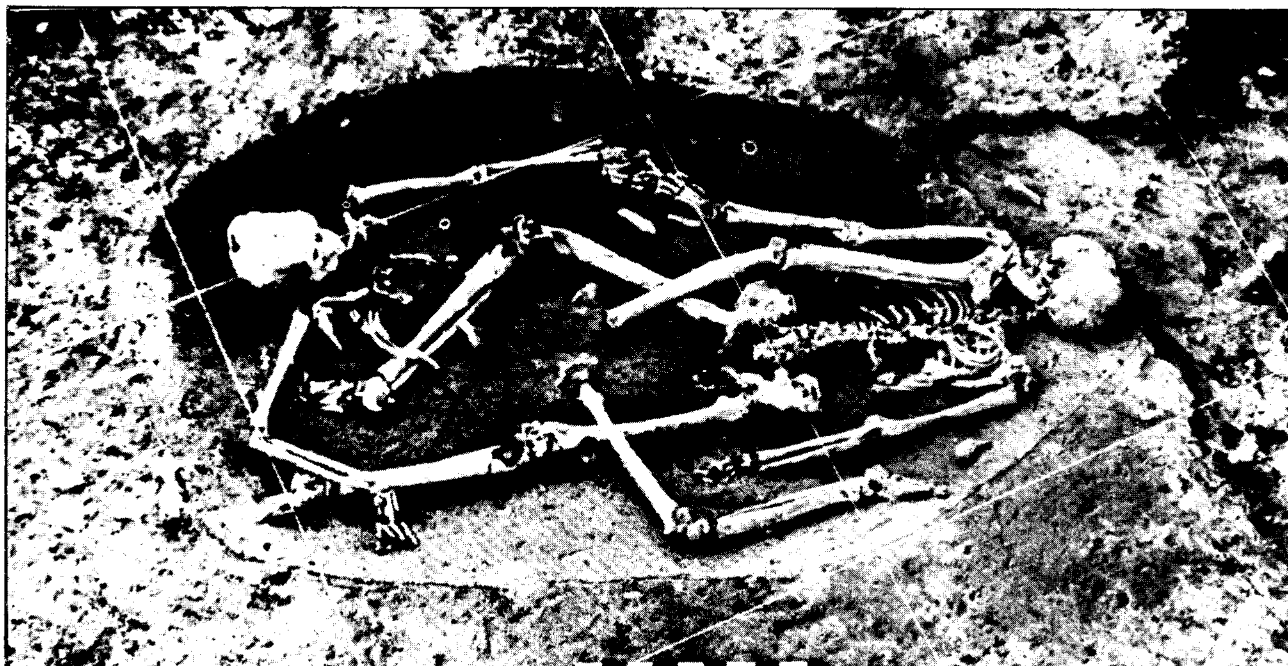
Pl. XIXA. Burzahom: Human Burial, Neolithic



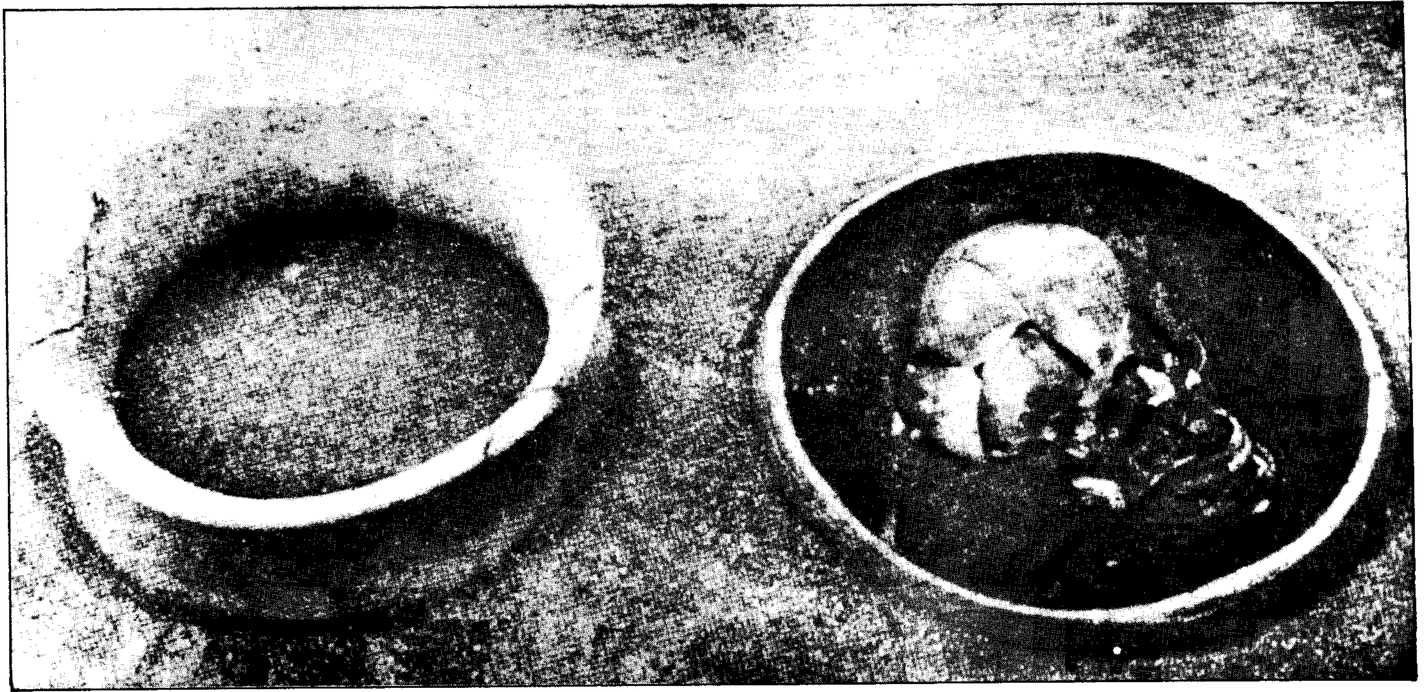
Pl. XIXB. Burzahom: Burial of a dog, Neolithic



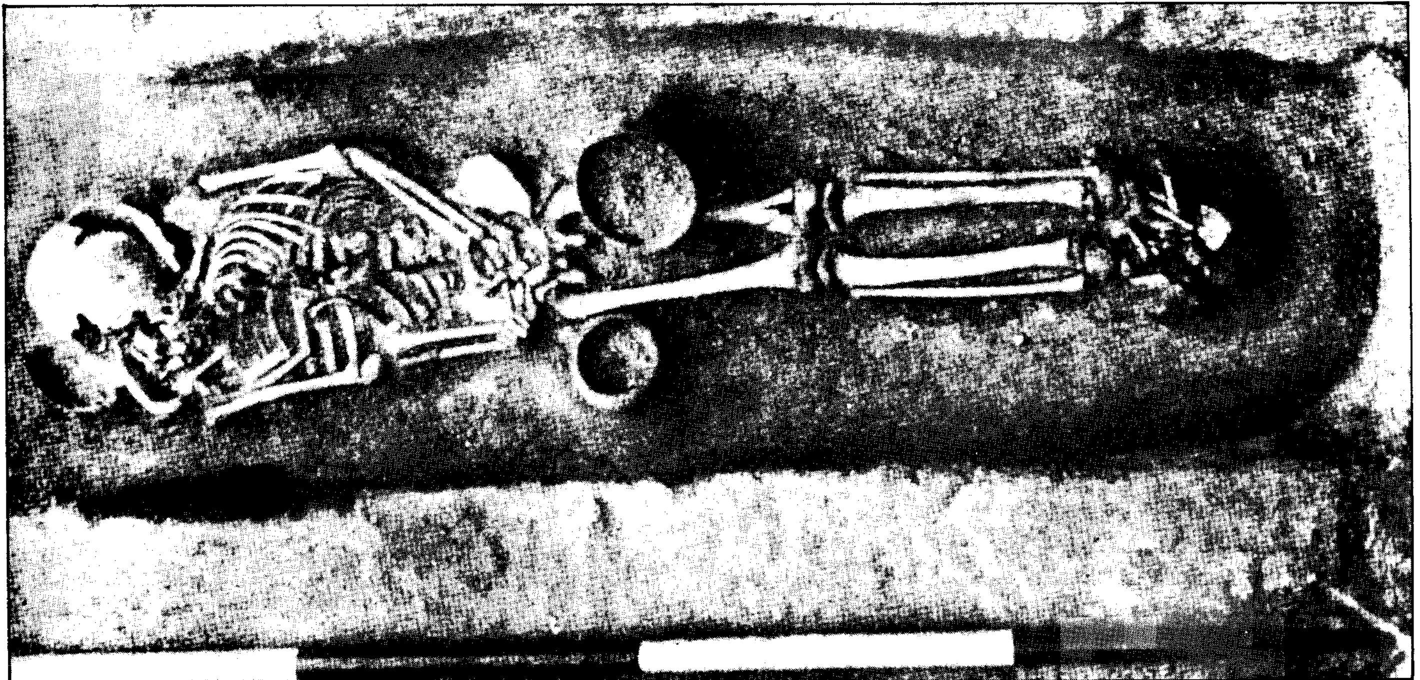
Pl. XXA. Gilund: Parallel mud-brick walls, Chalcolithic



Pl. XXB. Damdama: Double burial, Mesolithic



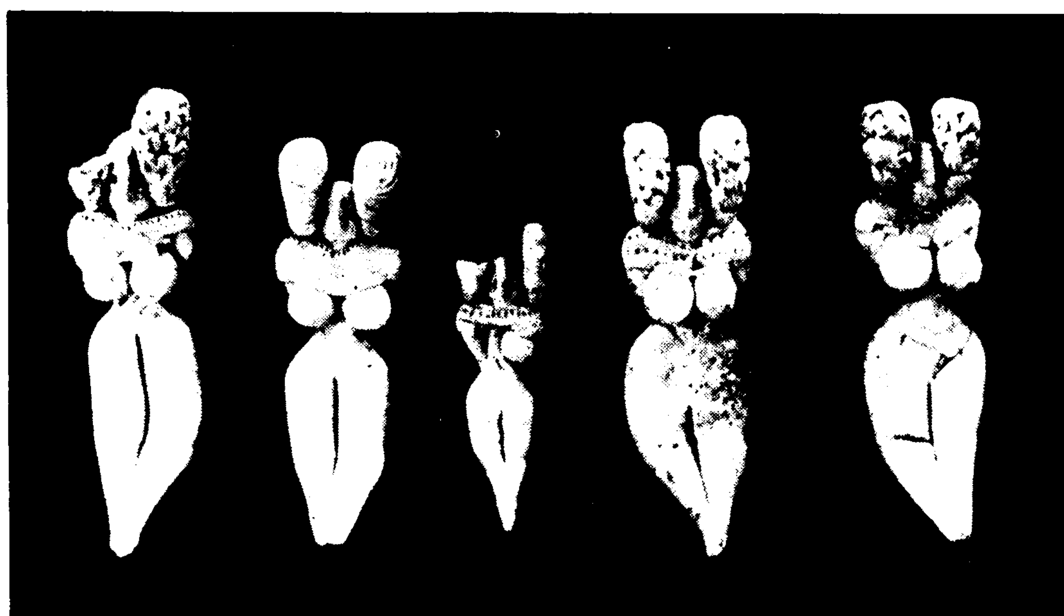
Pl. XXIA. Brahmagiri: Urn-burial, Neolithic



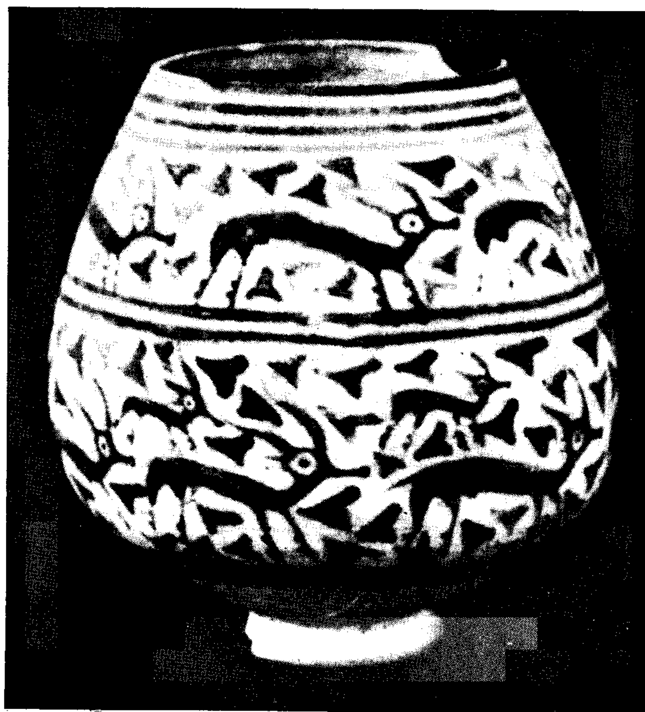
Pl. XXIB. Brahmagiri: Extended burial, Neolithic



Pl. XXIIA. Mehrgarh: Terracotta figurine, Period IV



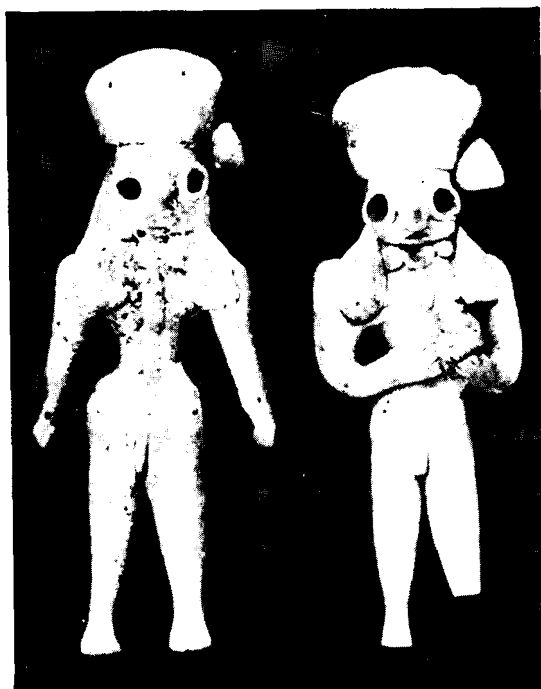
Pl. XXIIB. Mehrgarh: Terracotta figurines, Period VI



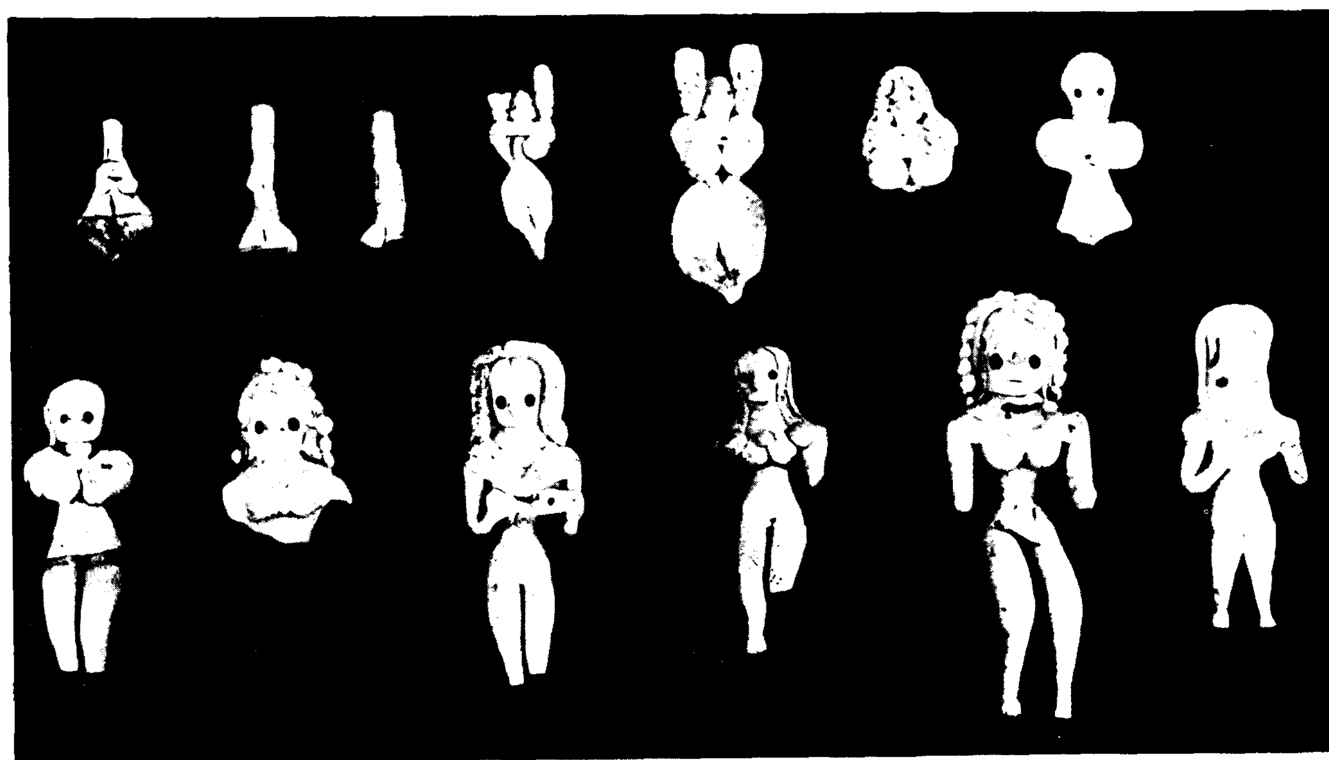
Pl. XXIIIA. Mehrgarh: Black-on-grey goblet, Period VII



Pl. XXIIIB. Mehrgarh: Black-on-grey bowl, Period VII



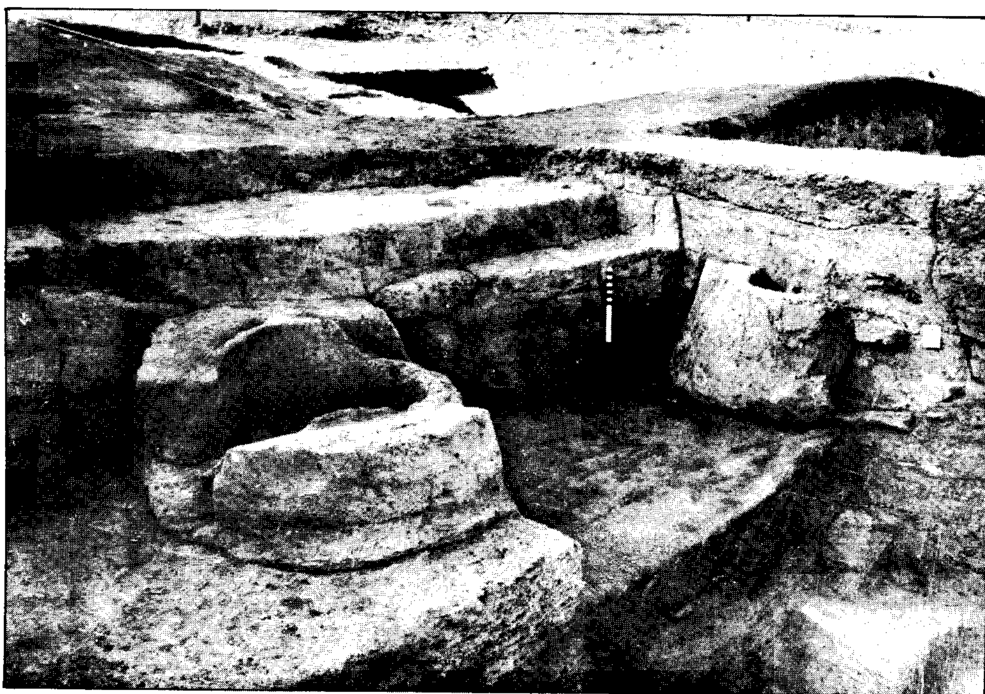
Pl. XXIVA. Mehrgarh: Terracotta figurines, Period VII



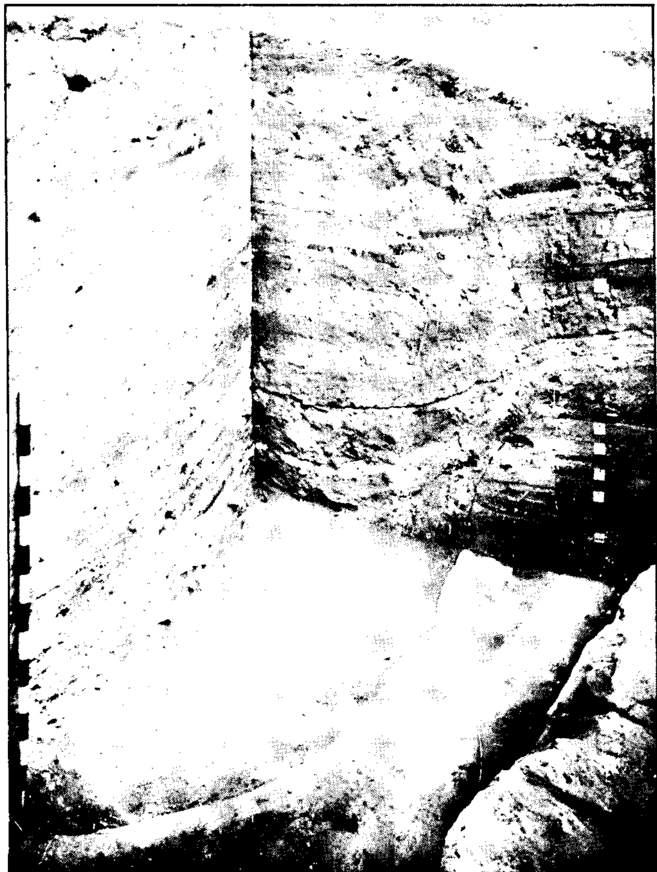
Pl. XXIVB. Mehrgarh: Evolution of terracotta figurines from Periods IV to VII



Pl. XXVA. Kalibangan: Lane with adjacent houses, Period I



Pl. XXVB. Kalibangan: *Tandūrs* (cooking ovens), Period I



Pl. XXVIA. Kalibangan: Faulted strata resulting from an earthquake which brought about the end of Period I



Pl. XXVIB. Kalibangan: Faulted walls of Period I, resulting from an earthquake



Pl. XXVIIA. Kalibangan: Criss-cross furrows of an agricultural field, Period I



Pl. XXVIIB. Kalibangan: Modern system of ploughing, which also has the criss-cross pattern



Pl. XXVIIC. Kalibangan: Modern field with mustard plants in the widely distanced furrows and those of horse gram in the others



Pl. XXVIIIA. Kalibangan: General view of the mounds

Pl. XXVIIIB. Kalibangan: A view of two phases of the fortification-wall around the Lower Town



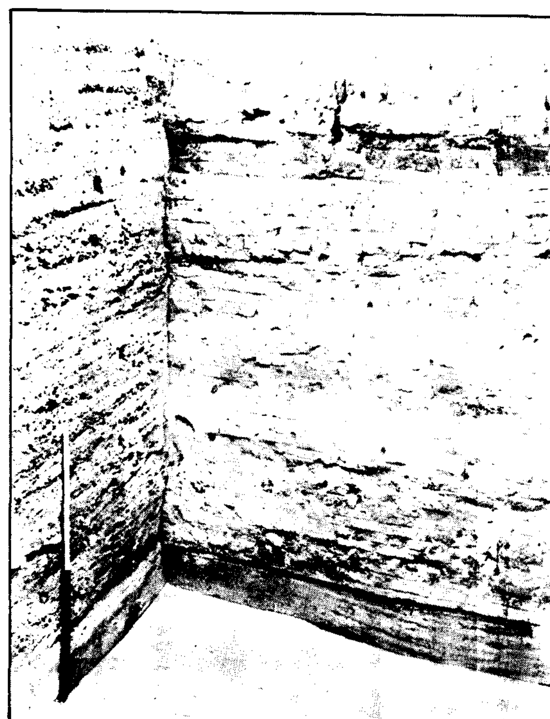
Pl. XXIXA. Kalibangan: Two streets coalescing near the northwestern gateway of the Lower Town



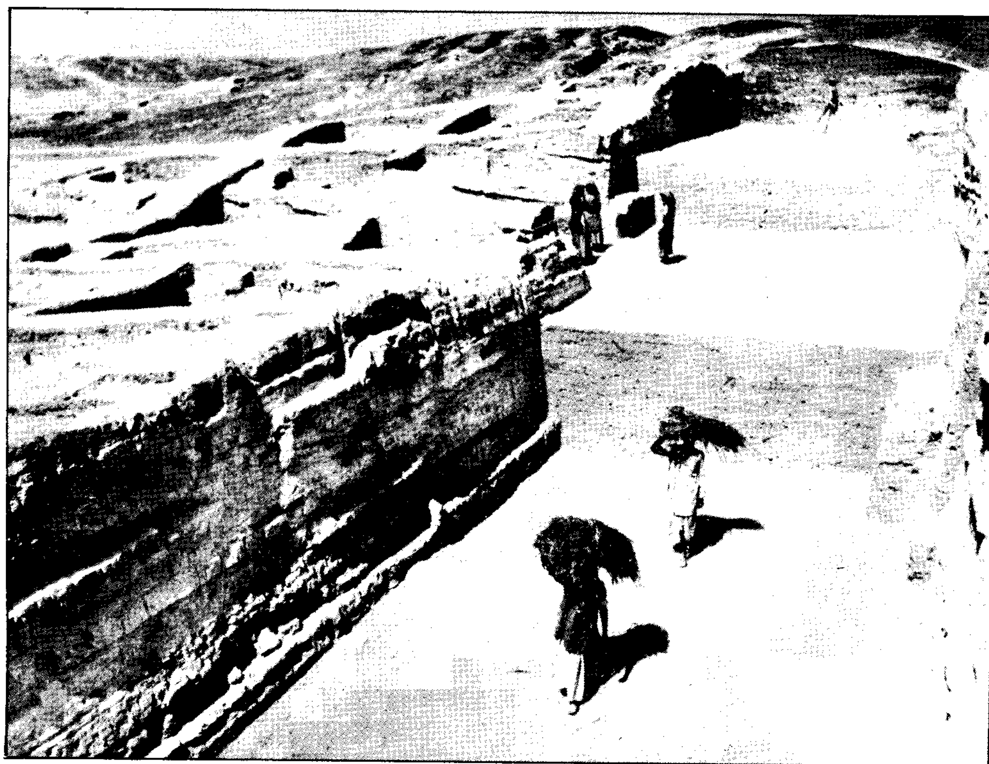
Pl. XXIXB. Kalibangan: A drain discharging into a soakage jar embedded in the street



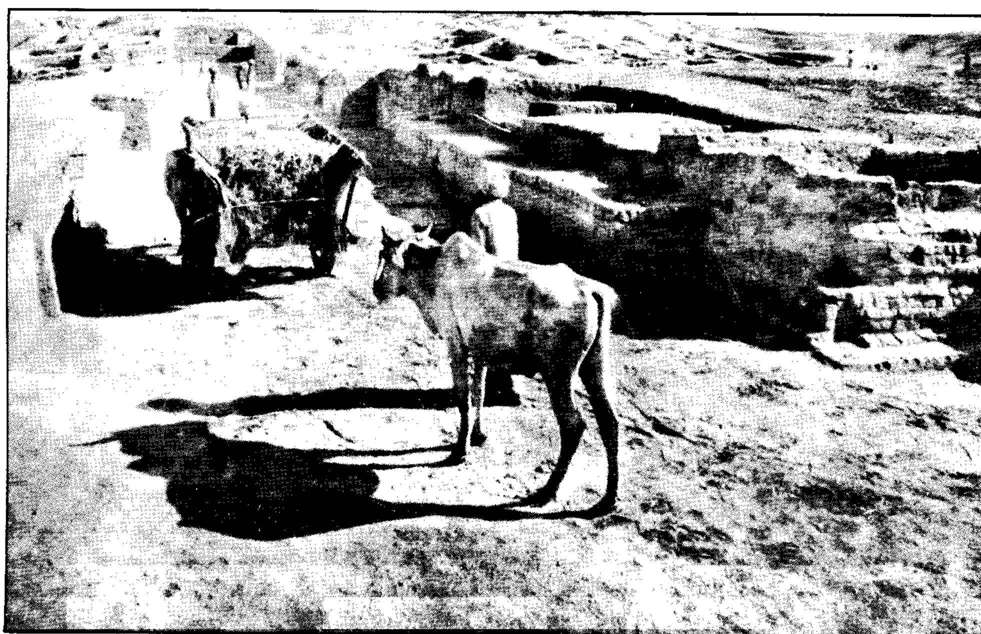
Pl. XXXA. Kalibangan: Tiled floor bearing a design of intersecting circles, in a house in the Lower Town



Pl. XXXB. Kalibangan: Walls of succesive subperiods in the Lower Town, showing that no encroachment was made on the street



Pl. XXXIA. Kalibangan: The widest street of the Lower Town



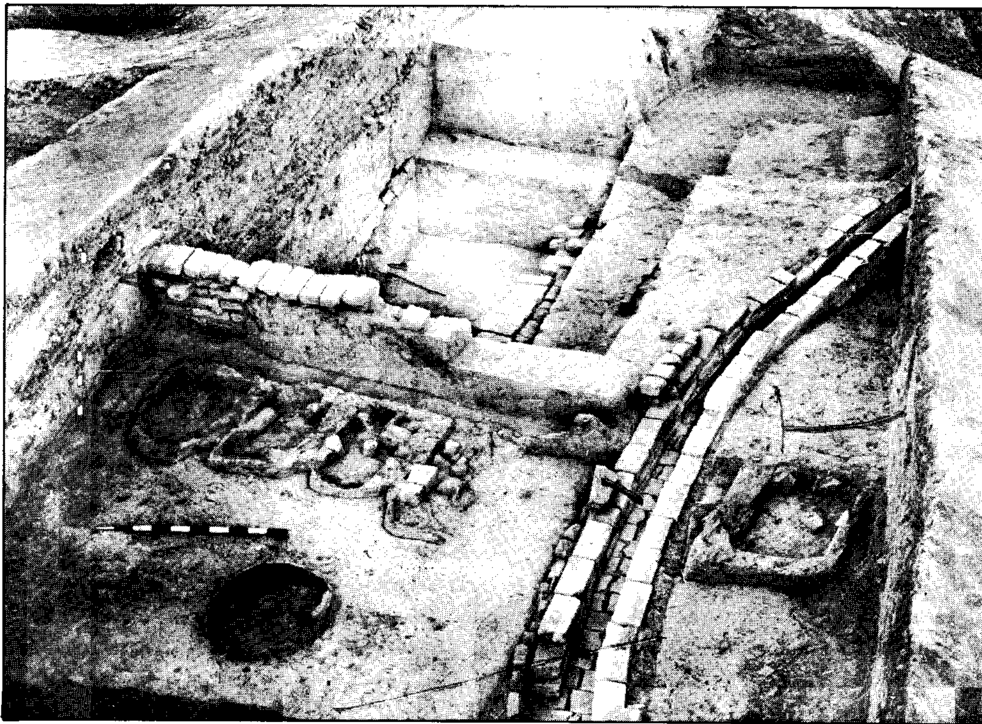
Pl. XXXIB. Kalibangan: Another view of the same street



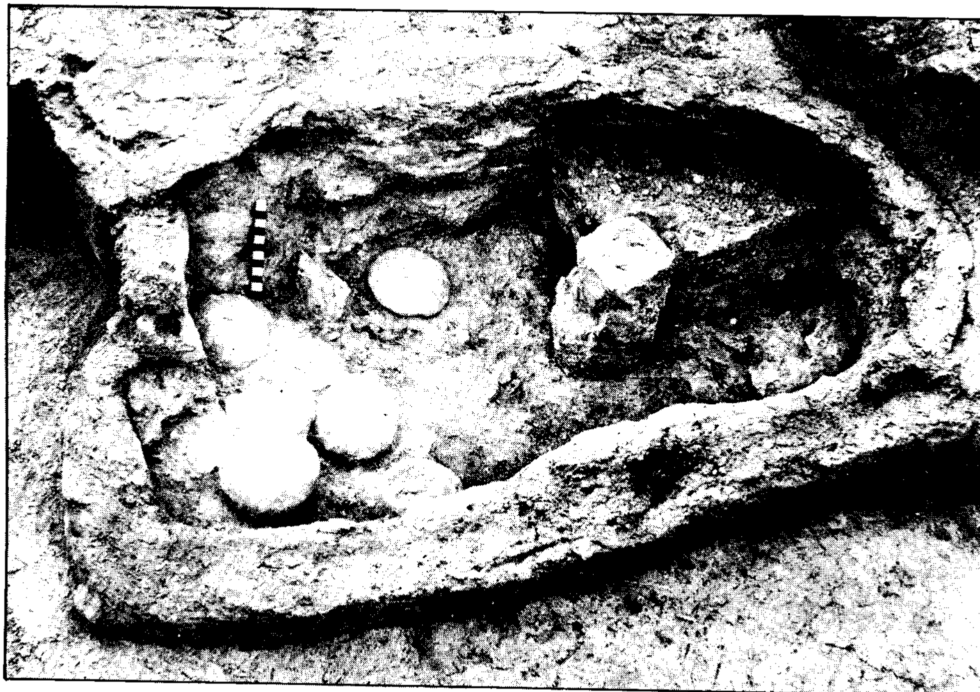
Pl. XXXIIA. Kalibangan: Brick-lined sacrificial pit with bones, in the southern half of the Citadel



Pl. XXXIIB. Kalibangan: Terracotta 'cake', depicting on one side a horned deity and on the other an animal pulled with a rope by a human being



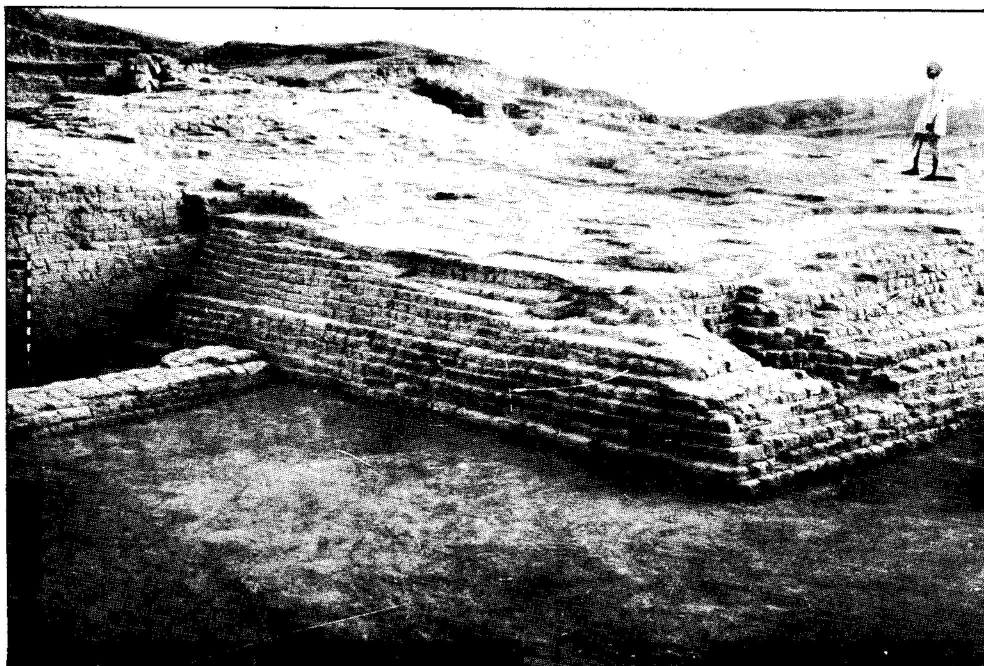
Pl. XXXIIIA. Kalibangan: A row of seven 'fire-altars' in the southern half of the Ciadel



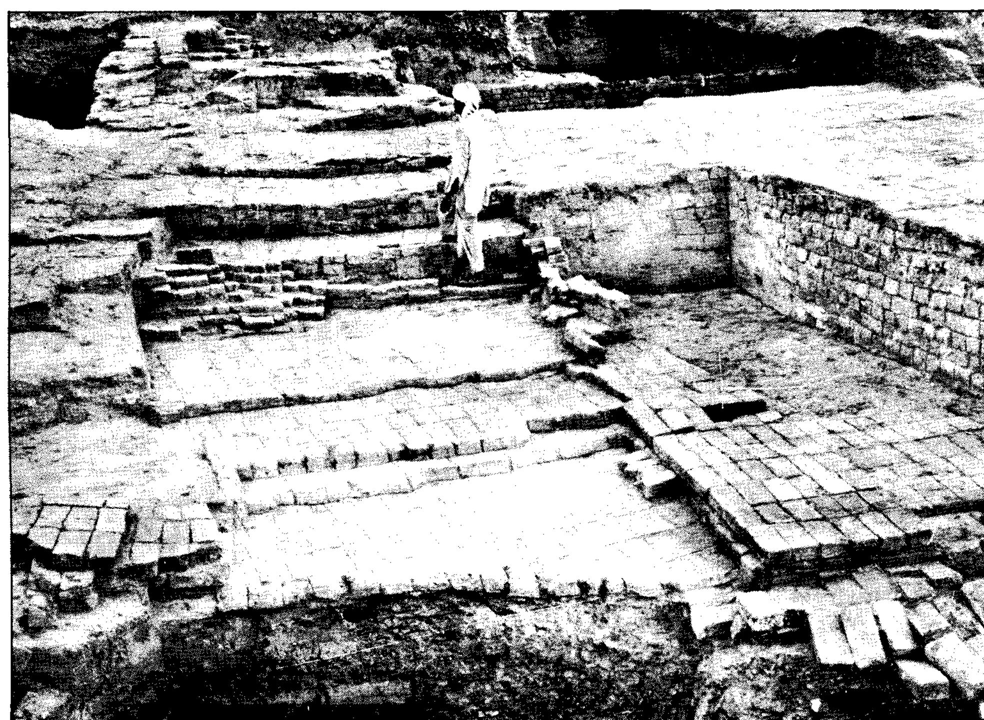
Pl. XXXIIIB. Kalibangan: A 'fire-altar' in a house in the Lower Town



Pl. XXXIV. Kalibangan: Close-up of a tower of the partition-wall of the Citadel. The vertical strip on the left shows the mud plaster which has been removed from the rest of the tower to expose the mud bricks. Below the tower are walls of Period I



Pl. XXXVA. Kalibangan: A view of the fortification-wall of the citadel, with its tower. Going below the tower is a wall of Period I



Pl. XXXVB. Kalibangan: A view of the stepped entrance on the southern side of the Citadel



Pl. XXXVIA. Banawali: An apsidal structure associated with 'fire-altars', Period II



Pl. XXXVIB. Banawali: Section across the moat, Period II

Pl. XXXVIIA. Banawali: Streets and houses, Period II



Pl. XXXVIIB. Banawali: Terracotta model of a plough, Period II



Pl. XXXVIII. Lothal: A view of mud-brick blocks constituting the base of the warehouse

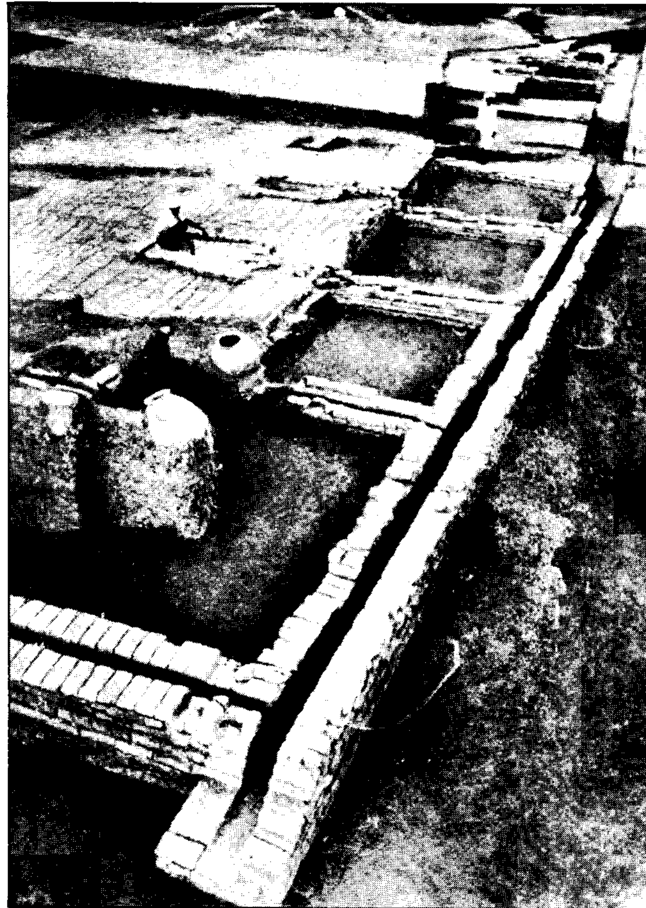


Pl. XXXIXA. Lothal: Dockyard





Pl. XXXIXB. Lothal: 'Persian Gulf' seal and its impression



Pl. XLA. Lothal: Bathing pavements and drains in the Acropolis



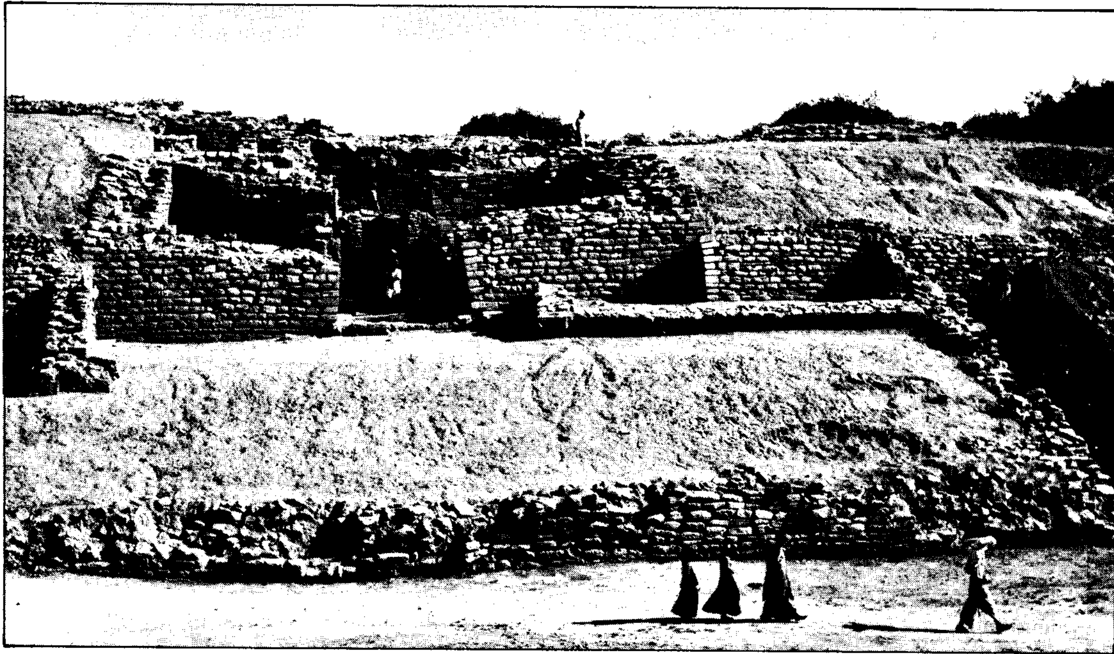
Pl. XLB. Lothal: Kiln for bead-making



Pl. XLIA. Surkotada: Gateway complex, Period IC



Pl. XLIB. Surkotada: A view of the fortification-wall on the western side, Period IC



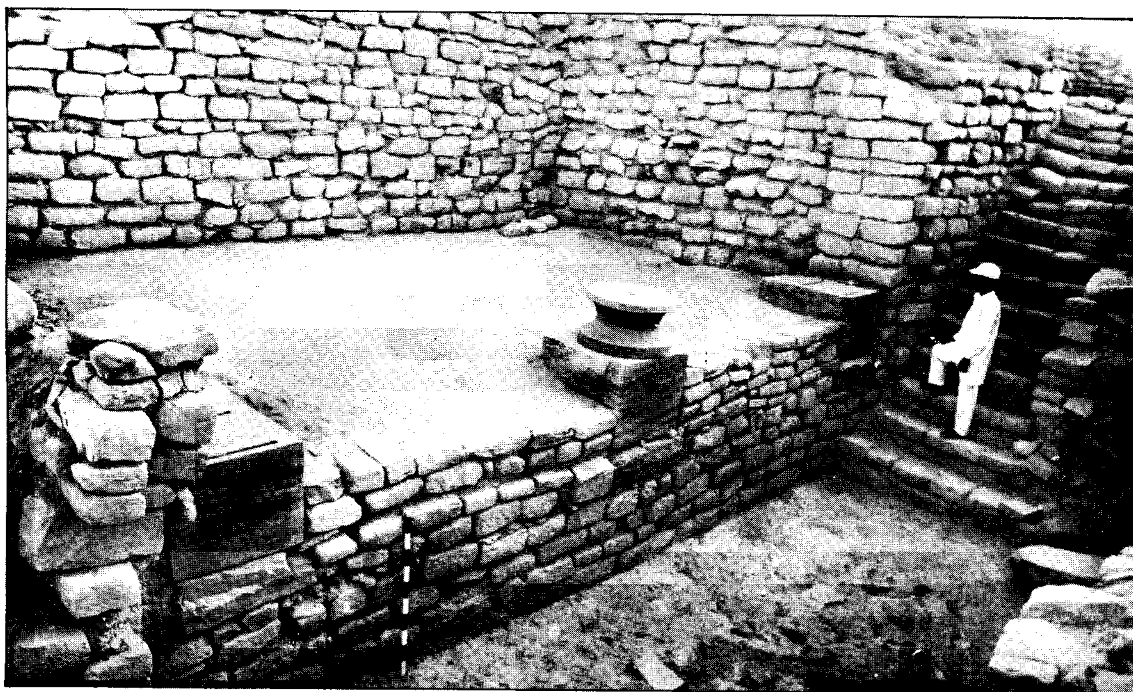
Pl. XLIIA. Dholavira: General view of the northern gateway of the Citadel



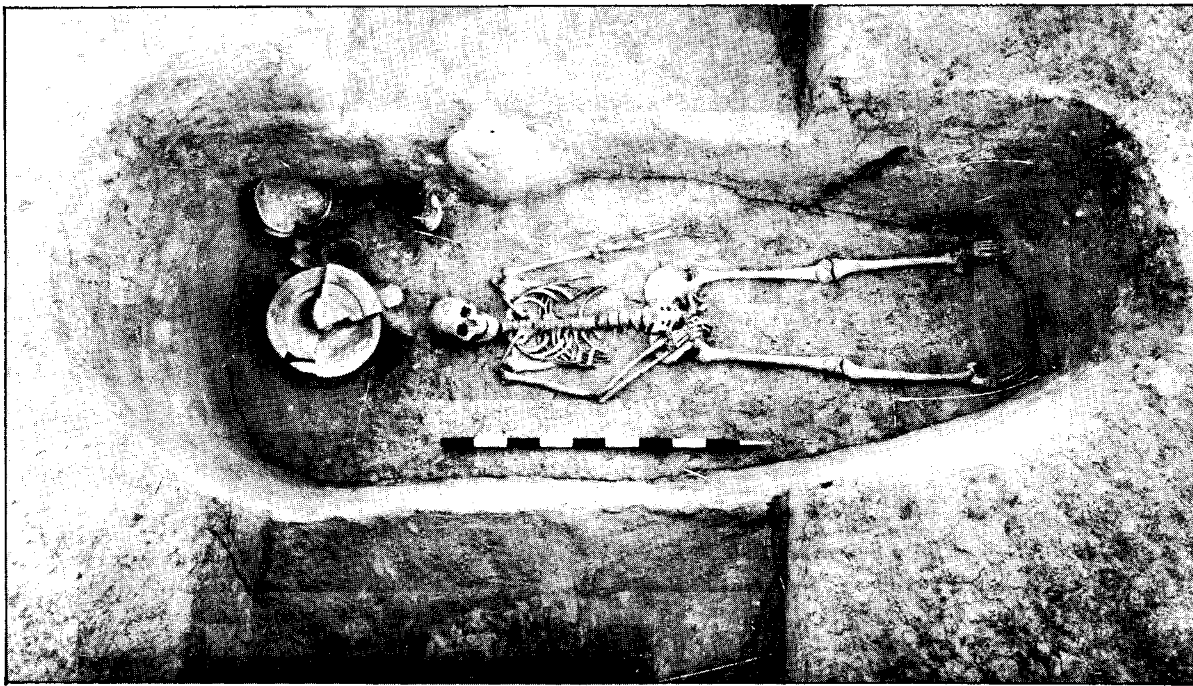
Pl. XLIIB. Dholavira: Staircase in the northern gateway of the Citadel



Pl. XLIIIA. Dholavira: Inscription consisting of ten Harappan signs



Pl. XLIIIB. Dholavira: A view of the eastern gateway of the Citadel, with pillar-bases *in situ*



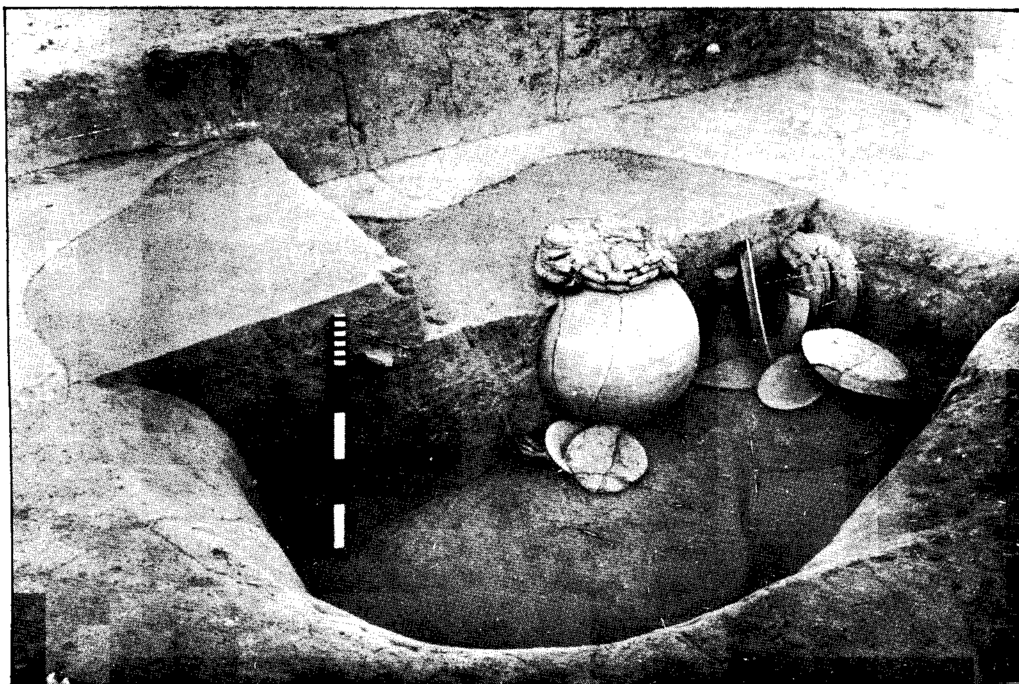
Pl. XLIVA. Kalibangan: Burial, Type I



Pl. XLIVB. Kalibangan: Burial, Type II



Pl. XLVA. Lothal: Burial with two skeletons



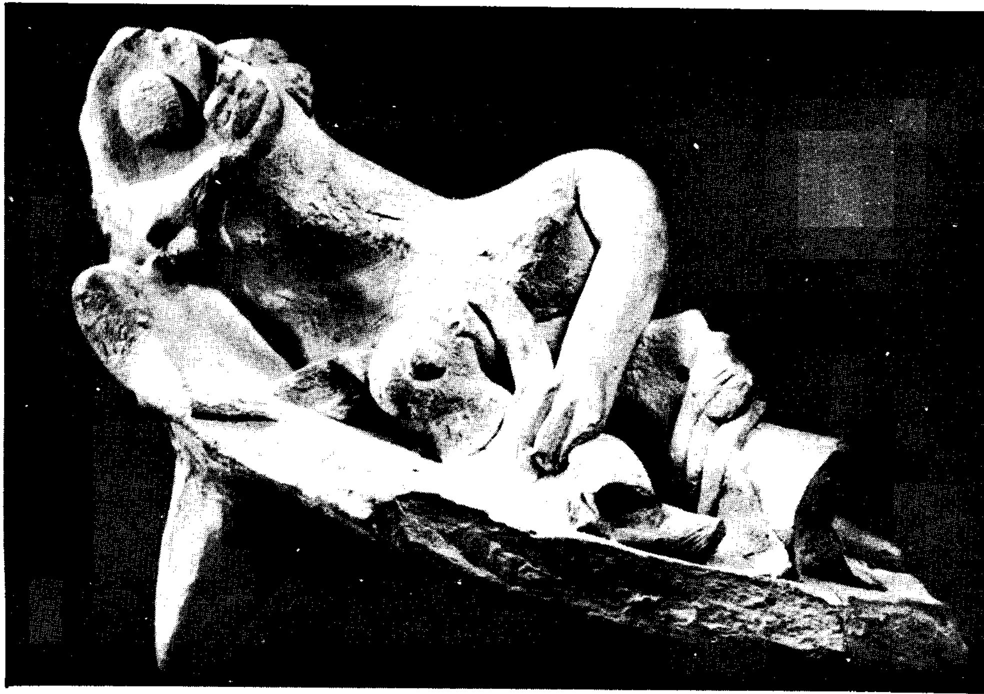
Pl. XLVB. Kalibangan: Burial, Type III



Pl. XLVIA. Mohenjo-daro: Terracotta female figurine



Pl. XLVIB. Banawali: Terracotta female suckling a child



Pl. XLVIIA. Harappa: Terracotta female suckling a child



Pl. XLVIIB. Mohenjo-daro: Terracotta male figurine



Pl. XLVIIC. Mohenjo-daro: Terracotta female figurine



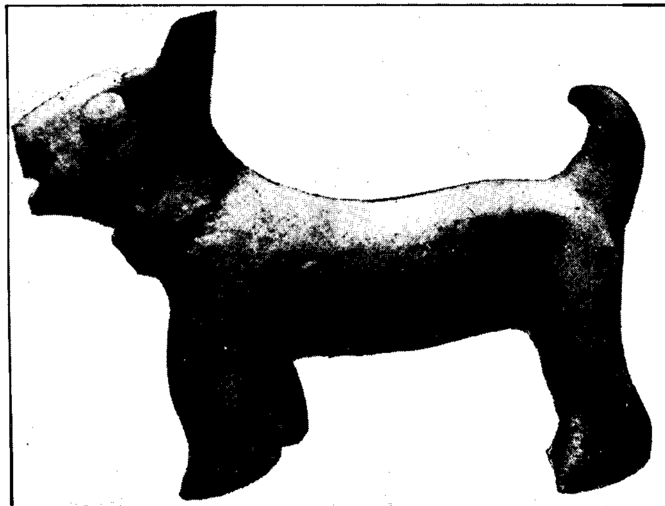
Pl. XLVIIIA. Banawali: Stone stele with engraved human figures, Period II



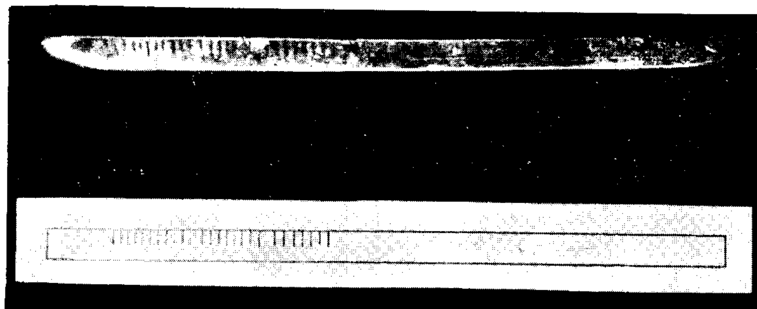
Pl. XLVIIIB. Mohenjo-daro: Terracotta mask



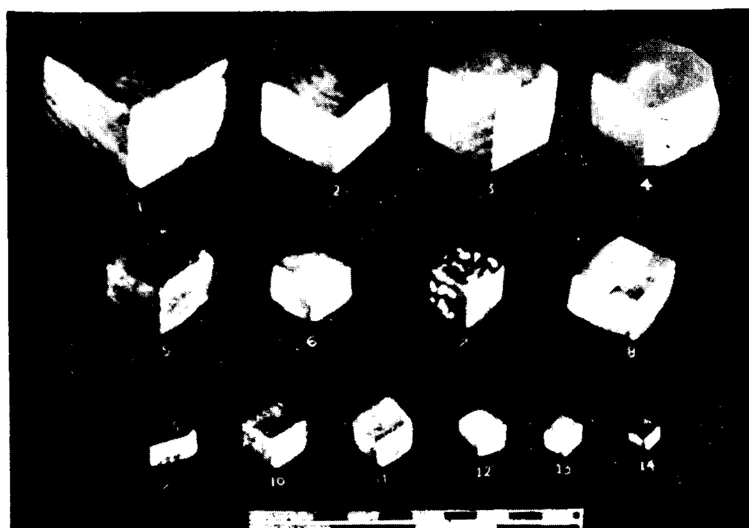
Pl. XLIXA. Harappa: Terracotta monkey



Pl. XLIXB. Mohenjo-daro: Dog wearing a collar



Pl. LA. Lothal: Ivory scale

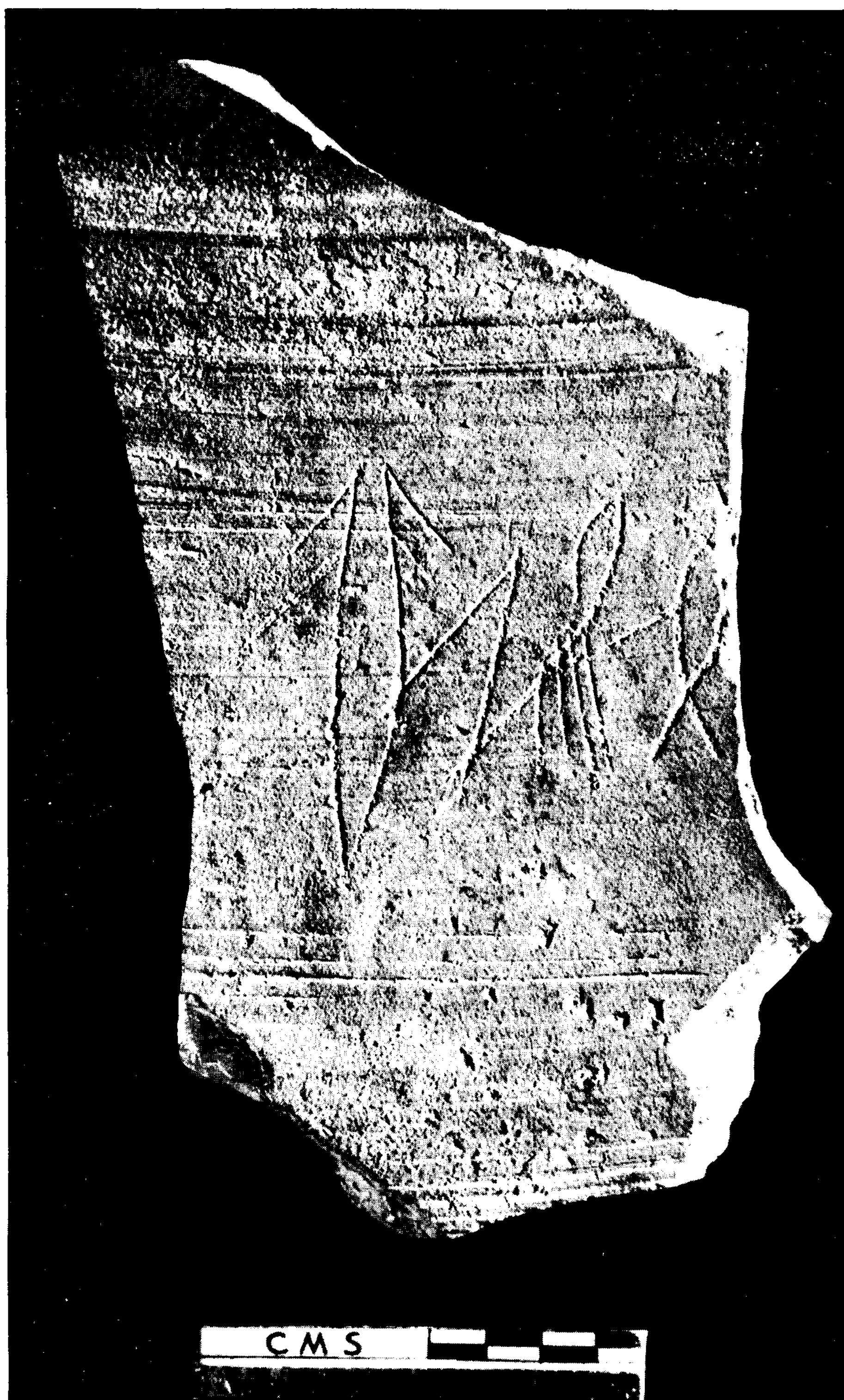


Pl. LB. Lothal: Stone weights

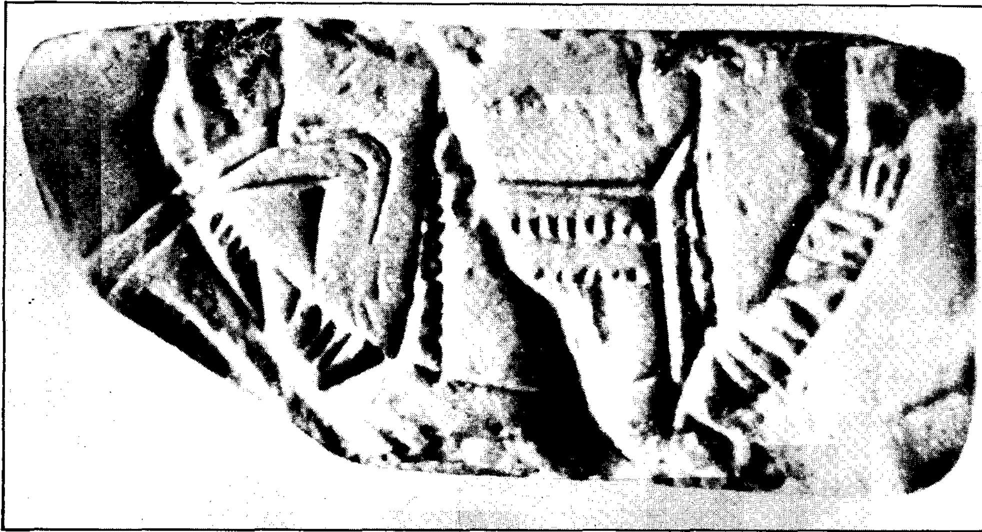




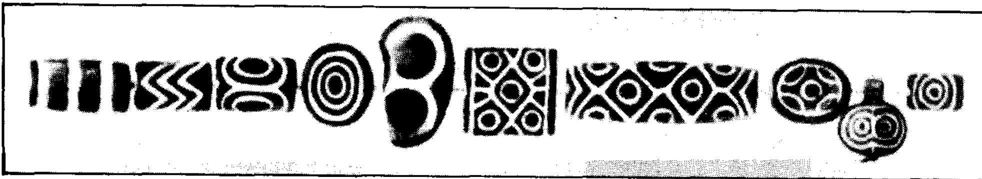
Pl. L C & D. Stone *lingas* from Harappa, Mohenjo-daro



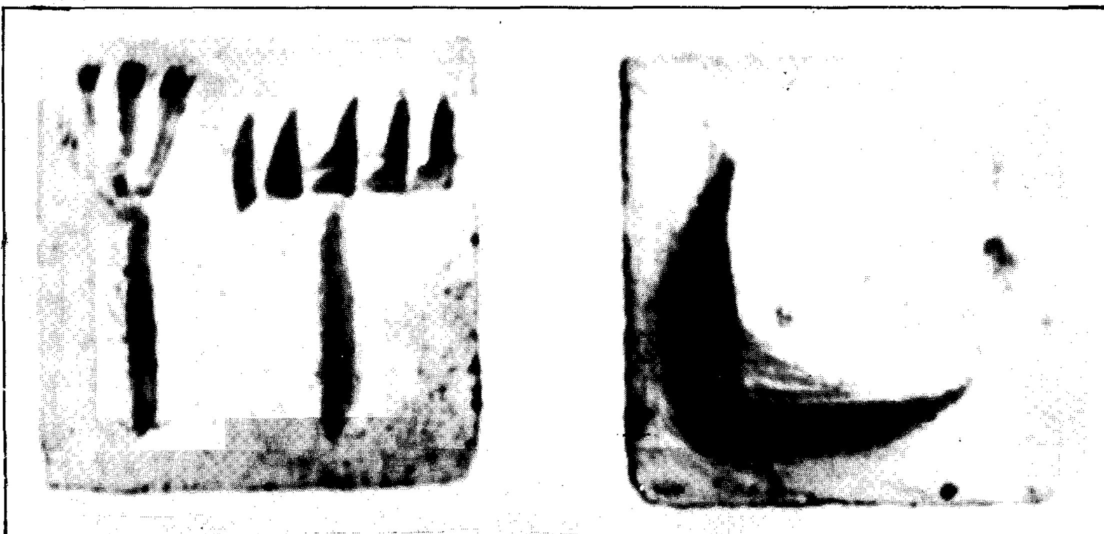
Pl. LI. Kalibangan: Inscribed potsherd. The overlap of letters shows that the direction of writing in the Harappan script was from the right to the left



Pl. LIIA. Mohenjo-daro: Impression of a seal depicting a boat



Pl. LIIB. Etched carnelian beads from Ur



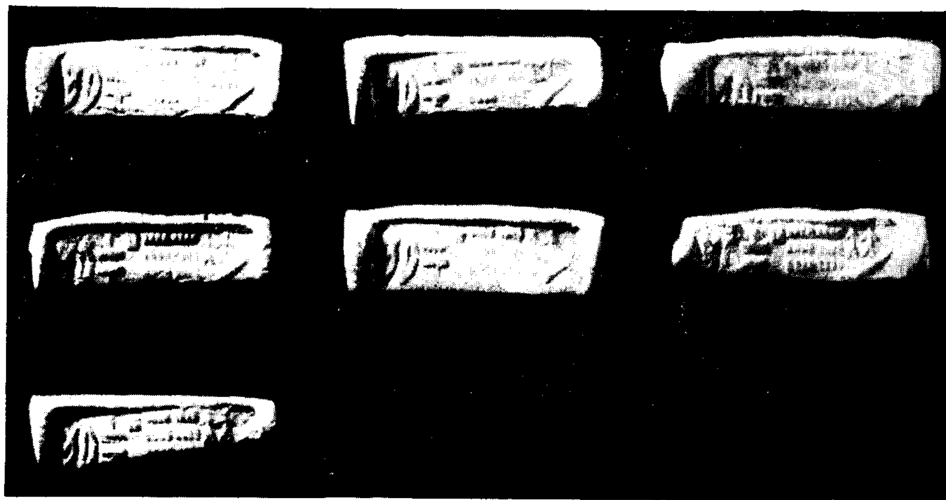
Pl. LIIC. Harappan seal from Altyn-Depe



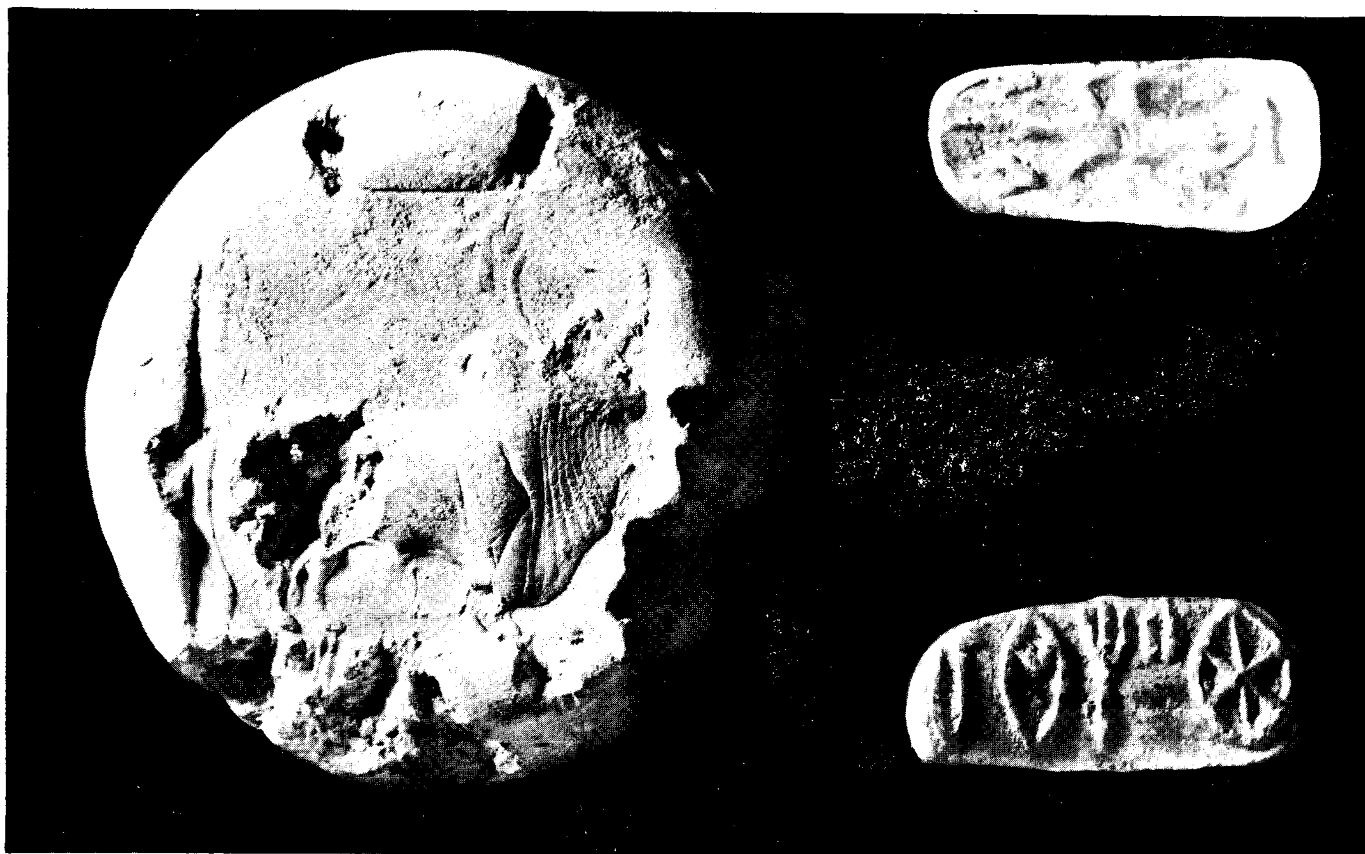

Pl. LIIIA. Kalibangan: Obverse and reverse of a seal



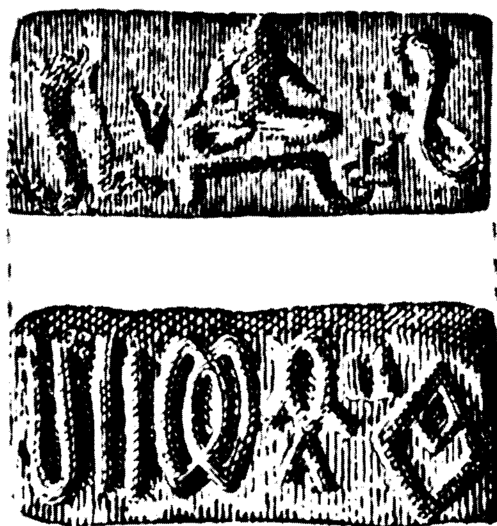
Pl. LIIIB. Kalibangan: Four views of a clay sealing bearing impressions of seals, reeds and knotted thread



Pl. LIVA. Kalibangan: Terracotta sealings with identical legend



Pl. LIVB. Kalibangan: Clay and terracotta sealings



A

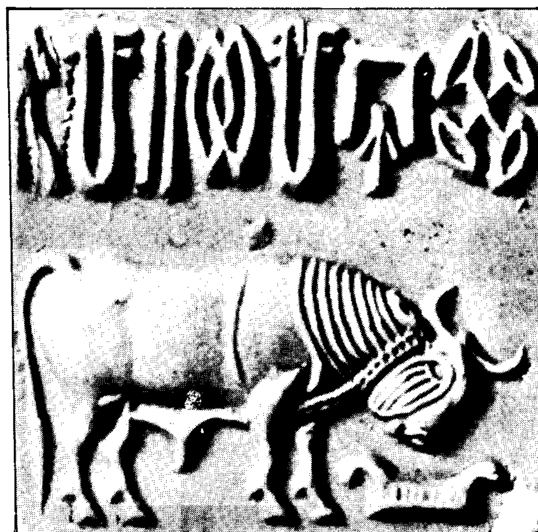




B Pl. LVA-C. Impressions of seals from Mohenjo-daro C



A



B

Pl. LVI. Impressions of seals: A and B, Mohenjo-daro; C, Harappa; and D, Kalibangan



C



D